



Knowledge Organiser Autumn Term Year 10



A Knowledge Rich Curriculum at Great Sankey High School

Research around memory suggests that if knowledge is studied once and not revisited or revised, it is not stored in the long-term memory. This means that after one lesson, or revising for one test, the knowledge will not be retained unless it is studied again. To ensure that knowledge is embedded in the long term memory it must be revisited frequently. Ensuring knowledge is embedded aids understanding, and in turn makes future learning more successful. To quote Daniel Willingham's learning theory,

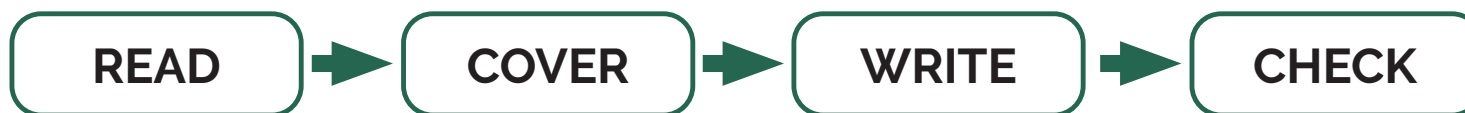
“Thinking well requires factual knowledge that is stored in our long-term memory”

As part of home learning, students should be revising what they have been taught recently but also content they were taught previously. Therefore, as part of our strategy to embed learning over time we have developed knowledge organisers across years 7 -11. These will provide key content and knowledge allowing students to pre-learn and re-learn, a vital part of processing all the information required to be successful. This knowledge will form the backbone of assessments in school.

How to use your knowledge organiser

Knowledge organisers will be used in subject lessons, homework activities and form time and therefore you need to bring your knowledge organiser to school every day.

Ensuring that knowledge is retained into your long-term memory and you are ready for tests takes work!

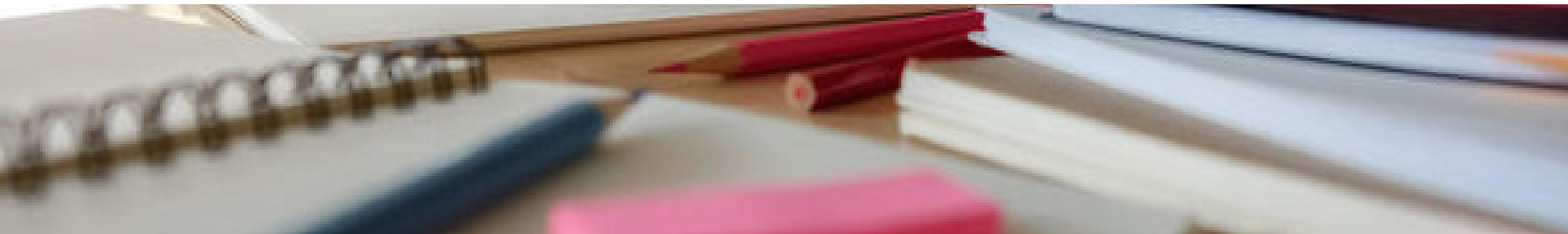


To encourage students to build good study habits, students will be assigned homework quizzes on a week A through the Google Classroom. Students will be expected to use revision strategies such as read, cover, write, check to learn key knowledge and will then complete the quizzes to demonstrate their learning. Completion of these quizzes is an essential homework activity and will be closely monitored by the pastoral team.

Other methods that you may wish to try at home are listed below:

- Create mind maps.
- Create flashcards.
- Get sticky with your learning: write out key points from the KO as you read over it on post-it notes.
- Write your own basic recall quizzing questions around the keywords, definitions and key facts that you need to know. Test yourself with these questions and then leave it overnight to answer them the next day.
- Write your own challenging questions using the following command words – explain, compare, evaluate. Then create a model answer for these questions.
- Put the key words from your KO into new sentences.
- Make mnemonics to remember the order of particular concepts.
- Draw a comic strip, storyboard or a timeline describing any series of events that have a chronological order.
- Write yourself or a partner some quiz questions. Quiz each other or swop your questions to see if you can answer each other's questions.
- Think about the big picture – why is knowing specific information important to you/other people/society/companies/science/technology? The more links that you can make, the more meaningful you make your learning and the more likely it is that you will remember it. Think about the big picture – are there any links in the content on your KO to anything that you have watched on TV, read about or heard in the news?
- Give yourself spelling tests.
- Definition tests.
- Draw diagrams of key processes or theories.
- Draw images and annotate/label them with extra information.
- Create fact files.
- Create flowcharts for descriptions or explanations that have a chronological order.
- Summarise in your own words each section.
- Get your parents/carers to test you.
- Pick out key words and write definitions.
- Pre-learning (read a section of your knowledge organiser prior to the lesson).
- Learn key quotes (if applicable). Consider what you may say about these quotes e.g. what the author is trying to make you think/feel, their choice of language, what can be inferred from it.
- Write a letter/blog/article to someone explaining a key idea or concept.
- Prepare to overcome any hurdles: write down any questions or any areas of the KO that you feel you need to speak to your teacher about.
- Use the guidance that may have been given with a specific KO to help you learn the information and use it.

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



Portable Knowledge in STEM at KS4



STEM stands for **Science**, **Technology**, **Engineering** and **Maths**, and it is important that you can see connections between each of these subjects. In the real world there are very few challenges that only require one set of skills. For example, you wouldn't be able to design a new app, video game or computer program without an understanding of all of the STEM concepts. This section of the knowledge organiser will show you how different STEM subjects have things in common, including examples of how you might use them, and how some things may actually appear slightly different from one subject to the next. As Geography is a Natural Science we can include that too.

EXAMPLE	SCIENCE	TECHNOLOGY & ENGINEERING	MATHS	GEOGRAPHY
Tally chart	Can be used to record the number of pupils in different height ranges in biology.	Can be used when choosing a final design choice from a selection of draft designs.	Can be used to record the number of pupils (usually labelled frequency) with different eye colours or what their favourite subject is.	Can be used to record the number of people visiting honeypot sites when studying tourism such as visitor numbers in Jamaica over a 5 year period.
Pie chart	Can be used to display the % of different hydrocarbons in crude oil or % of different gases in the atmosphere in chemistry.	Can be used to display results of a tally chart.	Can be used to display the proportion or % of pupils who travel to school in different way.	Can be used to record the amount of people working in different job sectors over time in the UK in comparison to other countries.
Bar chart	Can be used to display the number of people with different blood groups in biology.	Can be used to display results of a tally chart.	Can be used to display the number of pupils with a different favourite sweet.	In geography the term histogram and bar chart are interchangeable and are used to display data such as the percentage of forest lost in a range of countries.
Histogram	This is similar to a bar chart but the bars touch each other and they represent continuous data that is grouped, for example number of pupils in different height ranges in biology.	Can be used to display research data. Can also be used to represent time on a "Gant" chart.	In maths this can be used to show the distribution of a data set such as the ages within a population. In most cases, a histogram has different class widths meaning the area of each bar is the frequency for it.	A range of different bar charts and histograms are used when writing up fieldwork.
Line graph	Can be used to display the time taken for salt to dissolve at different temperatures in chemistry.	Can be used to represent trend data during research pieces.	In maths these are sometimes called scatter graphs or timeseries graphs. They can be used to display house prices and/or the trend in a data set over time.	Can be used when studying climate graphs. Line graphs are also used when analysing climate data over a period of time.
Line of best fit	In biology a line of best fit can be point to point, but in chemistry they are most often a straight line. In all 3 sciences they could be a curve depending on distribution of the points. For example the extension of a spring in physics.	x	In maths you might be asked to add a line of best fit to a scatter graph. It is always a straight line drawn with a ruler and can be used on graphs to show correlation between hours of revision and score in test. In GCSE Statistics, we use correlation coefficients and linear regression equations to analyse this in detail.	In geography lines of best fit are used to look for negative and positive correlations when comparing data usually in physical geography modules. It is always a straight line drawn with a ruler through as many points as possible.

Portable Knowledge in STEM at KS4

Hopefully this section of the knowledge organiser will help you spot where things crossover from one STEM subject to another as you move from lesson to lesson. REMEMBER some things are exactly the same, some are very similar but might be called different things, and some things are different altogether! and don't forget STEM stands for **Science, Technology, Engineering and Maths**



EXAMPLE	SCIENCE	TECHNOLOGY & ENGINEERING	MATHS	GEOGRAPHY
Range	Range around a mean can be used with data for heart rate after exercise in biology, amount of hydrogen gas produced in a chemical reaction in chemistry and number of times a ball bounces in physics.	x	The range is a measure of the spread of a data set. It can be used to compare data, with a smaller range meaning it is more consistent such as comparing times athletes run 100m over 10 races.	Range is used in the geographical skills section of course. Range can be used when looking at rainfall and temperature data for different locations or when using development indicators such as literacy rate, life expectancy etc.
Mean, Median and Mode	Mean, median and mode can be used to analyse any sets of data with a range of results.	x	Mean, median and mode can be used to analyse any sets of data in conjunction with the range.	Mean, median and mode are used in the geographical skills section of the course and can be used to analyse any sets of data with a range of results.
Continuous data	These are data values that can take any value and are grouped/rounded. In biology an example would be bubbles of oxygen produced during photosynthesis.	x	These are data values that can take any value and are grouped/rounded. Data could be length, time, capacity or mass.	This is where you have any value in your data. An example would be mm of rainfall.
Discrete data	In science this is sometimes called discontinuous data. An example would be blood group or eye colour in biology.	x	These are specific data values and can be quantitative (numerical) and qualitative (word or category). Examples include type of colour, the result from rolling a dice or the number of pets people have.	Discrete data in geography includes both primary and secondary data. Fieldwork data could include rock sample sizes and how they change from the source to the mouth of a river.
Using co-ordinates	x	Used by a CNC machine to position the cutter when machining a piece of material. Marking out a series of holes from dimensions on a drawing.	4 and 6 figure grid references are used when plotting in 4 quadrants and used in transformations.	Both 4 and 6 figure references are used across all topics in geography to locate places from a map.
Taking measurements that are accurate and precise	Accurate data is close to the true value and precise data gives similar results if you repeat the measurement. In science there are far too many examples to mention!	Used when marking out materials prior to cutting and quality during checking when manufacturing a component.	Being able to read a variety of scales is a key skill for plotting and drawing graphs or measuring angles and lines. It is important in constructions and scale drawings to be within 0.1 cm or 1°	Measurements and accuracy are really important when studying map skills, especially when looking at scale and distance.

Year 10 Term 1		Definition Sentence	Contextual Sentence
1	classical	Representing a high standard within a traditional form or style.	The orchestra played a selection of classical music.
2	comprehensive	Including with all or nearly all elements or aspects of something.	We have a comprehensive selection of art materials.
3	comprise	Consist of; be made up of.	The play comprises three acts.
4	confirmed	Fixed in habit and unlikely to change. Stated that a report or fact is true.	She was a confirmed fan of the band. The phonecall confirmed he had won.
5	contrary	Opposite in nature, direction, or meaning.	Contrary to popular belief, many cats dislike milk.
6	converted	Changed the form, character, or function of something.	The school converted a classroom to a new office area.
7	couple	Two people or things of the same sort considered together. To link or combine something with something else.	A couple of pupils helped tidy the room. You must couple the wire to the battery.
8	decades	Periods of ten years.	Music has changed over the decades.
9	definite	Clearly stated or decided; not vague.	She has very definite ideas about what kind of a job she wants.
10	deny	Refuse to give something to someone; to refuse to admit the truth or existence of.	You can't deny that she's a good singer.
11	differentiation	The process of making two or more things (or people) different.	Mix the paints carefully to allow a gradual differentiation in colour.

12	disposal	The action or process of getting rid of something.	The disposal of radioactive waste is a problem.
13	dynamic	Constant change, activity, or progress; energetic.	This was a dynamic period in history.
14	eliminate	To completely remove or get rid of something.	Try to eliminate fatty foods from your diet.
15	empirical	Based on observation or experience	We now have empirical evidence that the moon is covered with dust.
16	equipment	The necessary items for a particular purpose.	Collect the sports equipment from the gym at the end of the day.
17	extract	Remove/take out, especially by using effort or force. A short passage taken from a text, film, or piece of music.	They extract coal from open pits and underground mines. This extract is taken from his new novel.
18	file	A folder/box for holding loose papers together and in order for easy reference. To march or walk in a single line.	It is good to keep revision notes organised in a file. In silence, they started to file into the room for the exam.
19	finite	Limited in size or extent.	Every computer has a finite amount of memory.
20	foundation	An underlying basis or principle. The lowest part of a building, typically below ground level.	Good research should be the foundation of your report. The foundation of the house was completed last week.
21	global	Relating to the whole world; the whole of something/of a group of things.	The probable result of global warming will be a rise in sea levels.
22	grade	A particular level of rank, quality or value.	You should get a good grade next year.

Tier 2 Vocabulary

23	guarantee	A formal assurance that certain conditions will be met; a promise with certainty.	The computer comes with a three-year guarantee.
24	hierarchical	Of the nature of a hierarchy; arranged in order of rank.	The Roman Empire had a very hierarchical structure.
25	identical	Exactly the same as.	All the chairs in the room were identical.
26	ideology	A system of ideas and ideals.	The ideology of reincarnation is one of second chances.
27	inferred	To conclude something from evidence and reasoning rather than from pure fact.	His cold personality can be inferred from the description given in chapter one.
28	innovation	A new idea, method, or device	The company is very interested in product design and innovation.
29	insert	To place, fit, or push something into something else.	Insert the cable into the slot on the side of the phone.
30	intervention	Interfering with an outcome – especially of a condition / process to prevent harm or improve something.	Military intervention may increase the conflict even further.
31	isolated	Being in a remote location. Happening only once.	The castle was in an isolated position. The theft was an isolated incident.
32	media	The main means of mass communication (broadcasting, publishing, and the Internet) are regarded together.	The media coverage of the Olympics was very good.

33	mode	A way in which something happens or is done; a fashion or style in clothes, art, literature, etc.	Flying is now a common mode of transport.
34	paradigm	A typical example or pattern of something.	Fast and skilful, he is the paradigm of the perfect football player.
35	phenomenon	A fact or situation that is observed to exist or happen.	Gravity is a natural phenomenon.
36	priority	A thing that is regarded as more important than others.	She made homework her priority.
37	prohibited	Something that has been forbidden/ banned.	The sale of alcohol to people under 18 is prohibited.
38	publication	The preparation and issuing of a book, journal, or piece of music for public sale.	The publication contained several short stories and poems.
39	quotation	Something that is quoted – a word / phrase / passage referred to or repeated. Offers or prices given for something.	The quotation was taken from “Macbeth”. The quotation for the repair was £100.
40	release	To set free from restraint/ confinement; to make something available to the public.	The band will release their new single on Friday.
41	reverse	To move backwards; to make something the opposite of what it was.	The winners were announced in reverse order.

AQA GCSE English Language Paper 1: Explorations in Creative Reading and Writing
Before answering any questions, spend 5 minutes reading the Source provided.

Question number	What is the question asking me to do?	Subject terminology I can use in my response	Success criteria	Sentence stems
1 5 minutes	You need to select the correct answer from a set of multiple-choice questions.	N/A	- Identify and interpret explicit and implicit information and ideas - Select and synthesise evidence from different texts	N/A
2 10 – 12 minutes	You need to comment on the writer's use of language to present a particular focus. E.g., How does the writer use language to present the garden?	Semantic field, lexical field, metaphor, oxymoron, concrete noun, abstract noun, dynamic verb, stative verb, adverbs, adjectives, superlatives, comparatives, hyperbole, asyndetic list, polysyndetic list, syndetic list	Explain, comment on and analyse how writers use language to achieve effects and influence readers, using relevant subject terminology to support their views	<i>The writer can be seen to use language to present.....</i> <i>This is evident when it states, ".....".</i> <i>The use of.....connotes.....</i> <i>This is significant because.....</i> <i>As a reader, we may feel.....because.....</i>
3 15 minutes	You need to comment on the writer's use of structure to create a particular intent. E.g., How does the writer use structure to create tension?	Exposition, in media res (starts mid-action), climax, shift in focus, temporal marker, resolution, cyclical structure, narrative perspective – 1st or 3rd? Linear narrative / non-linear narrative, chronological narrative, dialogue, cliff hanger, juxtaposition, paradox, foreshadowing, analepsis (flashback), prolepsis (flashforward)	Explain, comment on and analyse how writers use structure to achieve effects and influence readers, using relevant subject terminology to support their views	<i>In the exposition, the writer.....</i> <i>As the extract progresses, the writer shifts focus to.....</i> <i>In the denouement of the extract, ...</i> <i>This can be seen when it states, ".....".</i> <i>This is structurally significant at this point because.....</i>
4 20 minutes	You need to evaluate how far you agree with the statement given, commenting on the writer's methods. E.g., The monster is presented as terrifying. To what extent do you agree or disagree with this statement?	Any language and structural devices (see above lists)	Evaluate texts critically and support this with appropriate textual references	<i>I agree with the statement that.....</i> <i>This is evident when it states, ".....".</i> <i>The use of.....connotes.....</i> <i>This is significant because.....</i> <i>Whilst I agree with the statement, some readers may disagree because.....</i>
5 45 minutes	You need to write a description or narrative. E.g., Write a description of a zoo or wildlife park from your imagination. You may choose to use the picture provided for ideas. Or Write the opening of a story about a human meeting an animal.	You are to use language and structural features in your creative writing – try and include some of the features that are listed above.	- Communicate clearly, effectively and imaginatively, selecting and adapting tone, style and register for different forms, purposes and audiences. - Organise information and ideas, using structural and grammatical features to support coherence and cohesion of texts - Candidates must use a range of vocabulary and sentence structure for clarity, purpose and effect, with accurate spelling and punctuation.	Let your Literature inform your Language – are there any terms or phrases you learnt in Literature that you can use in your creative writing for Language?

English Literature A Christmas Carol revision It is vital that you PLAN FOR the ESSAY question.

Misanthropist
philanthropist
Parsimonious:
unwilling to
spend money or
use resources.
avaricious

Penitent

Altruistic

epiphany

didactic

atonement

metamorphosis

allegorical

existential
dread

penance



Scrooge Dynamic Malevolent Malignant Hostile	Jacob Marley Tortured Didactic Penitent Condemned	Bob Cratchit Humble Diligent Moral Christian	The Ghost of Christmas Past Ephemeral Commanding Congenial	Mr Fezziwig Antithesis of Scrooge as an employer. Altruistic Beneficent	Fred Literary foil to Scrooge Charitable Benevolent	The Ghost of Christmas Present Prophetic Jovial Critical	The Ghost of Christmas Yet to Come Didactic Ominous	Tiny Tim Vulnerable Pensive Grateful
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As soon as
you get the
exam paper,
highlight A
Christmas
Carol on the
front cover.

Redemption is the idea of being saved from sin or evil. In Scrooge we see a man who is transformed from a greedy, selfish **miser** into a generous and good-natured character by the end.

He is shown the error of his ways by the ghosts that visit him and is redeemed by his own willingness to change. The moral message of the novella is that all human beings have the opportunity to behave in kinder ways towards each other.

Social Responsibility and Scrooge's Transformation

Initially, Scrooge is used by Dickens to represent the **selfish attitude** of the upper class within Victorian society. This is made apparent when he argues with the charity collectors in Stave One as he refers to the poor as "**the surplus population**". This **Malthusian assertion** (see 'Context: Poverty and Charity') appears after the unsympathetic description of Scrooge's character. This highlights Dickens' disapproval of this widespread viewpoint from the opening of the text.

As the novella progresses Scrooge begins to transform. Following his redemption in the final stave his **attitudes towards social injustice have also changed**. This highlights the idea that being **socially conscious is the ideal**, as this is a quality which is present in Scrooge after his redemption.

Dickens presents the impact that social responsibility can have in a **hyperbolic** (exaggerated) fashion. He achieves this through the fate of Tiny Tim, who would have died if it were not for Scrooge's financial support and intervention. Through this, Dickens makes it clear that social responsibility is an **essential component** to society, and should be practiced for the wider benefit of all those in the community.

Key themes in ACC



Introduction

In the didactic 19th century novella 'A Christmas Carol', Charles Dickens presents ideas about through the characters of

Conclusion

To conclude, the theme of social responsibility is fundamental to Dickens' message of social injustice and the need for change personified through the character.

Poverty and Social Injustice

The thematic focus on poverty and social injustice **underpins the novella**. This theme is introduced from the very offset of 'A Christmas Carol' through the charity collectors, who come to visit Scrooge. They immediately make the readers aware of the "**poor and destitute**" in society who are suffering "**greatly**", setting the tone for the remainder of the novella. Dickens is widely accepted to be an author who had a strong **social commitment** which translated into his work. He believed in the use of literature to convey **ethical and political statements** and so it is unsurprising that these undertones exist within the text

ACC: Key quotes for key characters

Scrooge	Fred	Cratchits/Tiny Tim	Jacob Marley	Ghost of Christmas Past	Ghost of Christmas Present	Ghost of Christmas Yet to Come	Ignorance and Want
"squeezing, wrenching, grasping, scraping, clutching, covetous, old sinner" (S1)	"ruddy glow" (S1)	"brave in ribbons" (S3)	"I wear the chains I forged in life" (S1)	"It was a strange figure -- like a child: yet not so like a child as like an old man" (S2)	"glowing torch" (S3)	"the phantom slowly, gravely silently approached" (S4)	"yellow, meagre, ragged, scowling, wolfish" (S3)
"a solitary child, neglected by his friends" (S2)	"I want nothing from you; I ask nothing of you; why cannot we be friends?" (S1)	"bore a little crutch and... an iron-frame" (S3)	"I made it link by link, and yard by yard" (S1)	"From the crown of its head there sprung a bright clear jet of light" (S2)	"jolly giant" (S3)	"Scrooge feared the silent shape so much that his legs trembled beneath him" (S4)	"They are Man's" (S3)
"Scrooge was the Ogre of the family" (S3)	"he's a comical fellow and not so pleasant as he might be" (S3)	"Bob's voice was tremulous...said that Tiny Tim was growing strong and hearty" (S3)	"Mankind was my business" (S1)	"It wore a tunic of the purest white" (S2)	"If he had like to die, he better do it quick to decrease the surplus population" (S3)	"It was shrouded in a deep black garment, which concealed its head, its face" (S4)	"Where angels might have sat enthroned, devils lurked" (S3)
"Tell me I may sponge away the writing on this stone!" (S4)	"I am sorry for him; I couldn't be angry with him if I tried" (S3)	"dancing about the table" (S3)	"cashboxes"; "ledgers"; "deeds"; "purses wrought in steel" (S1)	"Would you so soon put out, with worldly hands, the light I give?" (S2)	"Are there no prisons? Are there no workhouses?" (S3)	"The Spirit was immovable as ever" (S4)	"Is it a foot or a claw?" (S3)
"Make up the fires" (S5)	"Let him in! It is a mercy he didn't shake his hand off" (S5)	"Bob ...hugged his daughter to his hearts content" (S3)	"I am here to warn you that you have yet a chance" (S1)	"He seized the extinguisher-cap, and by sudden action pressed it down upon its head." (S2)	"If these shadows remain unaltered by the Future... child will die"	"Still the Ghost pointed with an unmoved finger to the head" (S4)	"Scrooge started back, appalled" (S3)

'Remains' by Simon Armitage - Key Quotes

Icon	Key Quotations	Analysis
	<i>"On another occasion, we got sent out to tackle looters raiding a bank"</i>	The poem opens in media res , or mid action, which serves to confuse the reader as they initially don't know what's going on. This also emulates the confusion of the soldier, as they are not emotionally prepared for what will come next. This may be Armitage making a societal comment, suggesting that soldiers are launched into situations they don't fully understand, and the military lack of compassion for the individuals they are risking in strategic military situations. By opening in media res , the poem also reflects the chaos of war and how unpredictable it is. Verb phrase 'got sent out' - the speaker is saying this is one occasion of many, not an exceptional case but a reality the soldiers have to deal with on a day-to-day basis. Soldiers are expected to deal with repeated exposure to suffering and horror without any help.
	<i>"probably armed, possibly not."</i>	There's a slight chance that the looter the soldier shot may been innocent and not a threat. The adverb "Probably" comes first because this is what he wants to believe as it provides justification. There is clear anaphora of this phrase later in the poem, to show how he is focused on the possibility of the killing being unjustified, and how he feels guilty about it and regrets killing the looter.
	<i>"pain itself, the image of agony"</i>	Semantic field of injury: 'pain', 'agony'. His colloquial (informal) language comes from trying to pretend he has not been impacted. Writing the poem is a process of going over memories and letting his actual emotions come out whilst on leave and escape from the conflict zone. It is showing how vividly scarred the soldier is from the conflict and how although this is a memory, he can still remember every detail.
	<i>"Then I'm home on leave. But I blink And he bursts again through the doors of the bank."</i>	Caesura provides a finality – the conflict and its impact should be final. Going home should be the end of his memory of the event and the extent of its impact on him. However, the enjambment across stanzas heightens how the soldier is mentally impacted by war – the soldier tries to blink to distinguish the difference between reality and memory, but it appears to be a blur, which is reflected in the enjambment between stanzas.
	<i>"he's here in my head when I close my eyes"</i>	The use of the declarative shows how the warzone is no longer real but in the soldier's mind; he is experiencing internal conflict due to guilt – a battle between whether the killing was justified or not. Looter is stuck in his mind – his memory continues to haunt him (PTSD) --> soldiers are desensitised by war.
	<i>"his bloody life in my bloody hands"</i>	By using the adjective "bloody", Armitage is making a pun as this word could be describing the violent, gruesome nature of his death or could just being used as slang / curse. The latter use of the adjective suggests that this event has ruined his life by having cursed him, and suggest he regrets killing him.

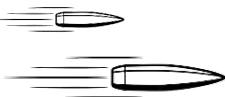
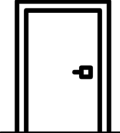
'War Photographer' by Carol Ann Duffy - Key Quotes

Icon	Key Quotations	Analysis
	<i>"spools of suffering set out in ordered rows."</i>	Sibilance gives a deadly tone to the actions photographed by the war photographer. The parallel to his film being 'set out in ordered rows' is an allusion to the structure and discipline of the soldiers in war.
	<i>"Rural England. Home again to ordinary pain which simple weather can dispel"</i>	The adjectival phrase 'rural England' connotes that problems are trivial and a sunny day can make everything all better. This juxtaposes the war-torn settings the speaker has been in, where pain - both emotional and physical - is devastating. This climate simply cannot put a façade on due to the sheer devastation. This heightens how 'rural England' is ignorant to the realities of war and conflict.
	<i>"He remembers the cries of this man's wife"</i>	Auditory imagery is used to develop the horrific image of war. The use of the stative verb 'remembers' shows the lasting impact war and conflict has on the speaker – they can still remember the vivid sounds and cries of the fallen soldier's loved one.
	<i>"A hundred agonies in black and white from which his editor will pick out five or six for Sunday's supplement."</i>	Metaphor suggests the agonies of war are curated for the Sunday supplementary papers. This seem distasteful. Alliteration emphasises the reader's frivolous nature. The devastation of war is almost entertainment for the readers.
	<i>"The reader's eyeballs prick with tears ... they do not care"</i>	While the readers are seemingly moved to tears, these seem disingenuous to the photographer as he later states 'they do not care'. The concrete noun 'eyeballs' suggests the act of crying after seeing the photos is almost mechanical, a reflex. It suggests they are not truly affected by the photos – it is only the physical process of secreting tears that they go through and not the genuine emotions behind them. This is further reinforced with the use of the verb 'prick' suggesting the pain and hurt is only temporary and short-lived, showcasing that the readers and viewers of the photos do not fully comprehend the sheer devastation and brutality of conflict.

'Kamikaze' by Beatrice Garland - Key Quotes

Icon	Key Quotations	Analysis
	<i>"Her father embarked at sunrise"</i>	Verb 'embarked' creates a brave tone: It is a journey to death and cannot make a choice to not to. Japan is known as the land of the rising sun. 'Embark' means to get on but also begin something – he is beginning a new chapter of his life – both choices lead to a type of death.
	<i>"full of powerful incantations"</i>	Metaphor: What are these powerful incantations (ideas) in his mind? He appears to be under the spell of patriotism and propaganda, reflecting the fact that he isn't making his own decisions initially – his decision would be to keep living – which he decides later. This heightens the power of culture and patriotism.
	<i>"figure of eight"</i>	Figure of eight: symbol of infinity. This may be used to imply the eternal nature of nature. It is infinite in comparison to the transience of humanity and life is brief and precious. War and honour will be forgotten but nature will remain. It implies nature is more powerful than mankind.
	<i>"flashing silver as their bellies swivelled towards the sun"</i>	Sibilance: creates a peaceful and graceful tone and may be a reflection of the movement of the fish - it reflects the nature's influence on the soldier, evoking emotion. Nature hosts sentiment and therefore is a powerful influence on the pilot's choice to return home.
	<i>"a tuna, the dark prince, muscular, dangerous"</i>	Personification shows how nature has the greatest power, over humanity. It presents an imbalance of power between nature and humanity. Even a kamikaze pilot, who is the epitome of bravery, senses the danger of the tuna. The pilot isn't the most dangerous thing – it is the fish. The metaphor 'dark prince' gives the tuna a sense of deserving respect and honour, like a soldier. It shows that nature can be dangerous, just like mankind and conflict.
	<i>"nor did she meet his eyes ... they treated him as though he no longer existed"</i>	Symbolism: Eyes are usually known as the gateway to someone's soul. Therefore, we could infer either the wife doesn't want to see the person he has become and appears ashamed of him OR she feels guilty for having to now act as if he isn't there due to the harsh Japanese culture. The impact of conflict is ongoing – passed down from generation to generation.
	<i>"he must have wondered which had been the better way to die."</i>	Verb 'wondered' - shows the destructiveness of patriotism. Society is so indoctrinated by propaganda used as tool by the government, that it destroys families and connections. This is written in third-person detached voice – maybe representing how the speaker doesn't agree with the cultural views.

'Exposure' by Wilfred Owen - Key Quotes

Image	Key Quotations	Analysis
	<i>"our brains ache, in the merciless iced east winds that knife us"</i>	First-person plural 'our' shows how this experience is collaborative and universal. The use of the verb 'aches' connotes a sense of suffering and pain. Intertextual link: Emulates Keats' poem, 'Ode to a Nightingale' which starts 'my heart aches' - Keats was a model for Owen; however, after reading and meeting Sassoon, he saw that poems should sometimes deal with horror and ugliness. Owens highlights a darker side of nature and how it can tell us something about the inherent evil capacity of humankind. The reference to the noun 'brain' could link to the impact war has on people's mental state, like Owen who suffered from PTSD. Personification = nature seems to be attacking the soldiers – it seems as though nature is more deadly than the enemy soldiers. The verb 'knife' can attribute to a larger semantic field of injury and violence, with reference to 'bullets', 'rank', 'army'.
	<i>"Dawn massing in the east her melancholy army attacks once more in ranks"</i>	Personification of dawn (the first appearance of light in the sky before sunrise) - normally dawn is associated with hope and a fresh start (due to it being a new day); however, here it connotes a sinister tone with nature causing suffering upon mankind. This is describing the rain – closely aligning it with military jargon (nouns 'army' and 'ranks') . This lexical field of military battle shows that there is little difference between the enemy soldiers and the weather. It suggests that both are slowly killing the soldiers.
	<i>"sudden successive flights of bullets streak the silence"</i>	Sibilance (soft 's' sounds) - creates a hissing sound when read aloud. This could be inferred to reflect the sound of bullets passing over OR the shivering of the soldiers in the bitter cold. The hissing sound is a reminder to the reader, that the soldiers are vulnerable and there is always a constant threat.
	<i>"Shutters and doors, all closed: on us the doors are closed,— We turn back to our dying."</i>	Caesura - Here the soldiers are reflecting and thinking back to home. The breaks in the lines may reflect the division between those at home and the soldiers caused by war. This may also reflect the soldiers' concern that people back home were losing interest in their fate as war dragged on. The reference to the nouns 'shutters' and 'doors' showcases the segregation between those at war and them at home – depicting returning home as not an option. It is almost as if families have lost hope that their soldiers will return home due to how long it has gone on for.
	<i>"For love of God seems dying."</i>	The verb 'dying' - contextual link: Link Owen abandoning his religion, the reader can infer that some people during the war are losing their religious beliefs because of the horrors of war.
	<i>"All their eyes are ice, But nothing happens."</i>	Metaphor – eyes of the living and the dead men. It's a vivid description of how the soldiers are overpowered by nature. It hints that the living men are no longer able to feel any emotion. Cyclical structure – death is inevitable, and the cycle of suffering is monotonous.

'London' by William Blake - Key Quotes

Image	Quote	Analysis
	"'I wander thro' each charter'd street"	The verb 'wander' showcases how the speaker aimlessly is walking down the streets of London. The use of the adjective 'charter'd' connotes a sense of oppression and entrapment – a place where everyone is restricted.
	"marks of weakness, marks of woe"	This line breaks the iambic tetrameter – it falls short by a syllable. This may reflect the innate suffering and weakness of all in London – not only are people physically weak, but also mentally due to the corruption of the government. This is reinforced with the nouns 'weakness' and 'woe' emphasising that the oppression is present in everyone - it appears to be innate.
	"the mind-forg'd manacles"	The metaphorical indoctrination and restriction is present in everyone – everyone is restricted mentally within London. Their minds and vision is indoctrinated by the corrupt government and institutions – the people of London believe the way they are treated is okay.
	"plagues the marriage hearse"	The oxymoron suggests that everything which is positive is destroyed and metaphorically dies in London. This is showcased through the ceremony of love (marriage) and the vehicle of death (hearse).

 Year 10 Mathematics Knowledge Organiser	Topic	Key terms – use www.amathsdictionaryforkids.com to help		
	Number Fractions & Percentages	Percentage	An amount given out of 100	The percentage 37% means '37 out of every 100'.
		Decimal multiplier	A decimal used to find the percentage of an amount.	15% = 15/100 = 0.15 so 0.15 is the decimal multiplier .
		Equivalent Fractions	Fractions that are equal to each other	$\frac{2}{3}$ and $\frac{8}{12}$ are equivalent fractions .
Calculating with Fractions		Calculating with Percentages		
Simplifying To write a fraction in its simplest form, (cancel down), you must divide both parts by their HCF. $\frac{6}{12} \div 6 = \frac{1}{2}$		Percentage of an Amount To find 10% of an amount $\rightarrow \div$ by 10 Find 15% of 20 $\begin{array}{r} 10\% = 2 \\ 5\% = 1 \\ \hline 15\% = 3 \end{array}$ Find 21% of 60 $\begin{array}{r} 10\% = 6 \\ 10\% = 6 \\ 1\% = 0.6 \\ \hline 20\% = 12 \\ 1\% = 0.6 \\ \hline 21\% = 12.6 \end{array}$		
Fraction of an Amount Step 1: Divide by the denominator. Step 2: Multiply by the numerator. Find $\frac{3}{4}$ of 20 Step 1: $20 \div 4 = 5$ Step 2: $5 \times 3 = 15$		Percentage Increase Add to the original amount Non Calculator Increase 80 by 12% $10\% = 8$ $1\% = 0.8$ $2\% = 1.6$ $12\% = 9.6$ $80 + 9.6 = 89.6$ Calculator Increase 120 by 23% $100\% + 23\% = 123\%$ $123\% = 1.23$ Multiplier Multiply by the multiplier $120 \times 1.23 = 147.6$		
Add and Subtract Look for a common denominator. $\frac{2}{3} + \frac{4}{5}$ In this case, 15 is a common denominator We now write them as equivalent fractions $\frac{10}{15} + \frac{12}{15} = \frac{22}{15} = 1\frac{7}{15}$ We do exactly the same for subtraction $\frac{7}{8} - \frac{3}{7} = \frac{49}{56} - \frac{24}{56} = \frac{25}{56}$		Reverse Percentages Lauren is given a 12% pay rise. Her new salary is £24,080 What was Lauren's salary before the pay rise? The new salary is 12% larger than the original. So let the original = 100%. The new must be $100\% + 12\% = 112\%$ 112% as a decimal multiplier is 1.12 so original $\times 1.12 = \text{£}24,080$ original = $\text{£}24,080 \div 1.12 = \text{£}21500$		
Mixed Numbers An improper fraction is one where the numerator is greater than the denominator. A mixed number is a number with an integer part and a fraction part Improper $\rightarrow$ Mixed $\frac{13}{4} = \frac{4}{4} + \frac{4}{4} + \frac{4}{4} + \frac{1}{4} = 3\frac{1}{4}$ Mixed $\rightarrow$ Improper $3\frac{2}{5} = \frac{3 \times 5 + 2}{5} = \frac{17}{5}$		Percentage Decrease Subtract from the original amount Non Calculator Decrease 40 by 27% $10\% = 4$ $1\% = 0.4$ $7\% = 2.8$ $20\% = 8$ $27\% = 10.8$ $40 - 10.8 = 29.2$ Calculator Decrease 35 by 16% $100\% - 16\% = 84\%$ $84\% = 0.84$ Multiplier Multiply by the multiplier $35 \times 0.84 = 29.4$		
Calculating with Mixed Numbers Change into improper fractions FIRST, then calculate as normal. $2\frac{1}{3} - 1\frac{2}{5} = \frac{7}{3} - \frac{7}{5}$		Profit & Loss $\frac{\text{Change}}{\text{Original}} \times 100$ Original skirt price = £15 Sale price = £12 $\frac{3}{15} \times 100 = 20\%$ $\frac{\text{Profit or loss}}{\text{Cost}} \times 100$ Profit or loss is selling minus cost Sale price = £25.20 cost £18 profit = £7.20 $\frac{7.20}{18} \times 100 = 40\%$		
Multiplying Multiply the numerators Multiply the denominators $\frac{3}{7} \times \frac{2}{5} = \frac{3 \times 2}{7 \times 5} = \frac{6}{35}$ $1\frac{2}{3} \times 2\frac{4}{5}$ $\frac{5}{3} \times \frac{14}{5} = \frac{5 \times 14}{3 \times 5} = \frac{70}{15} = 4\frac{10}{15} = 4\frac{2}{3}$				

 Year 10 Mathematics Knowledge Organiser	Topic	Key terms – use www.amathsdictionaryforkids.com to help		
	Geometry Transformations	Reflect	Translate	Centre of enlargement
		Rotate	Vector	Clockwise/anticlockwise
		Enlarge	Scale factor	

Vectors

Vectors are often written as column vectors

Left or right $\begin{pmatrix} 3 \\ -4 \end{pmatrix}$
Up or down

Positive values are right and up. Negative values are left and down.

This is 3 right and 4 down.

This is the vector $\begin{pmatrix} 4 \\ 1 \end{pmatrix}$



It goes 4 units right and 1 unit up.

Add/subtract vectors:

$$\begin{pmatrix} 8 \\ 4 \end{pmatrix} - \begin{pmatrix} 3 \\ 6 \end{pmatrix} = \begin{pmatrix} 5 \\ -2 \end{pmatrix}$$

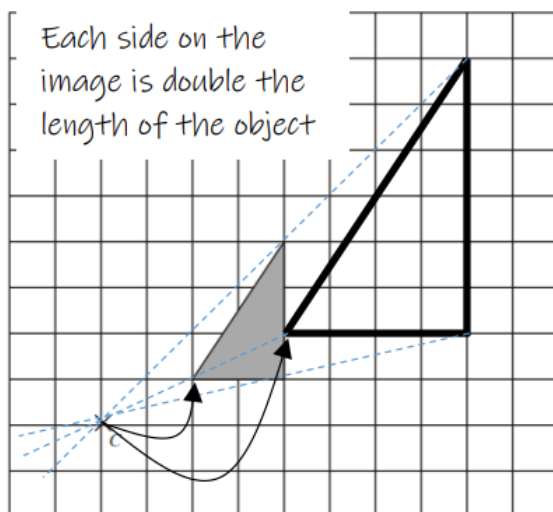
Multiply vectors by a constant

$$3 \begin{pmatrix} 4 \\ 7 \end{pmatrix} = \begin{pmatrix} 12 \\ 21 \end{pmatrix}$$

Transformations

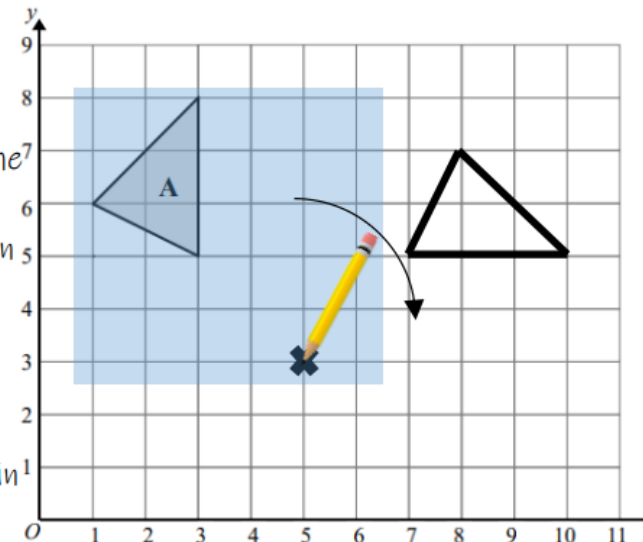
Enlargement: e.g. Enlarge the shaded shape by scale factor of 2, centre C.

Counting from C to the first vertex, it was 2 squares right and 1 square up, so the image will be double that (s.f. of 2) so 4 right and 2 up from the centre, C.



Rotation: e.g. rotate shape A 90° clockwise about (5,3)

Draw the object onto tracing paper and put the pencil on the centre of rotation (5,3). Then rotate the tracing paper as instructed and draw the image in its new position.

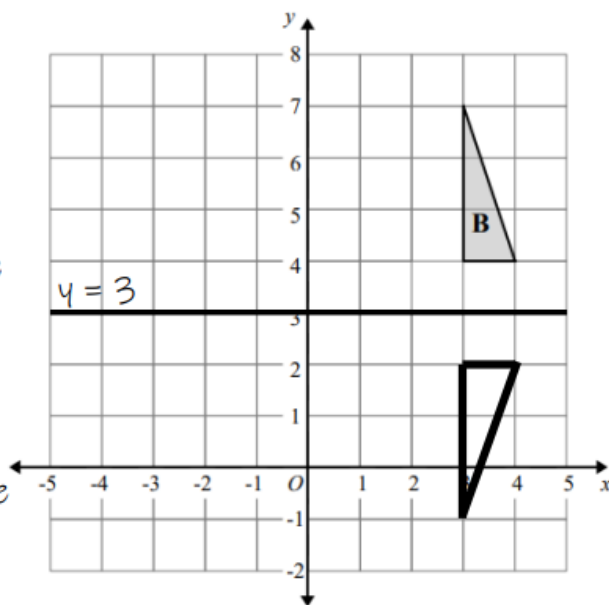


Reflection: e.g. reflect shape B in the line $y = 3$

Draw on the line of reflection.

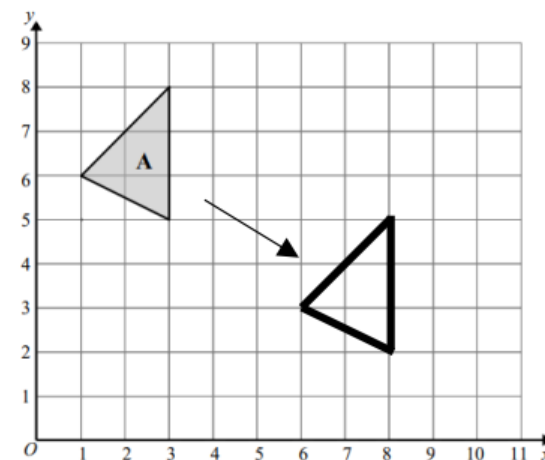
Reflect each point to the other side of the line of reflection.

Each point on the image is the same distance from the line of reflection as they are on the object.



Translation: e.g. translate triangle A by the vector $\begin{pmatrix} 5 \\ -3 \end{pmatrix}$

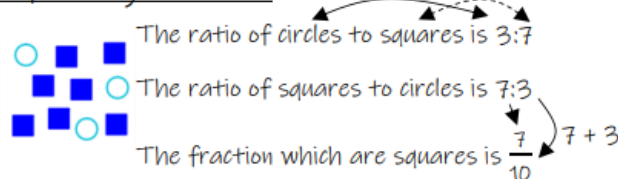
A translation is a movement, so in this instance it moves 5 squares right and 3 squares down.



Rotation, reflection and translation all leave a congruent (identical) shape to the object.

 Year 10 Mathematics Knowledge Organiser	Topic	Key terms – use www.amathsdictionaryforkids.com to help		
	Ratio and Proportion	Share	Inversely	Proportion
		Simplify	Unitary method	Equation
		Directly	Ratio	

Expressing as a ratio



Equivalent ratios

Ratios can be simplified by dividing by a common factor

e.g.

$$\begin{array}{c} 25:10:15 \\ \div 5 \quad \downarrow \div 5 \quad \div 5 \\ 5:2:3 \end{array}$$

They can also be simplified to 1:n or n:1 by dividing by an appropriate value

e.g.

$$\begin{array}{c} 5:18 \\ \div 5 \quad \div 5 \\ 1:3.6 \end{array}$$

The only time we allow a decimal in a ratio is when it is the "n"

Best value using a unitary method

For these questions, scale the quantity down to 1 (also known as the unitary method) then compare.

	Brand A	Brand B
Weight	400g	750g
Price	£2.56	£5.10

Brand A: $\text{£}2.56 \div 400 = \text{£}0.0064$

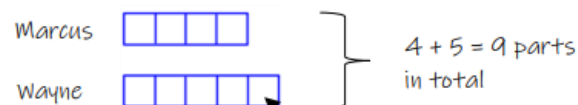
Brand B: $\text{£}5.10 \div 750 = \text{£}0.0068$

This is cost per 1g

£0.0064 is smaller than £0.0068 so Brand A is better value

Sharing in a ratio

e.g. Marcus and Wayne share £4500 in the ratio 4 : 5



£4500 split into 9 parts is

$$\text{£}4500 \div 9 = \text{£}500 \quad \text{Each part is worth £500}$$

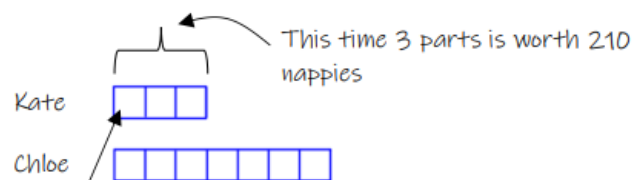
So Marcus gets $\text{£}500 \times 4 = \text{£}2000$

And Wayne gets $\text{£}500 \times 5 = \text{£}2500$

e.g. Kate and Chloe both have young children and have bought a large quantity of nappies in the ratio 3 : 7

Kate has bought 210 nappies.

How many has Chloe bought?



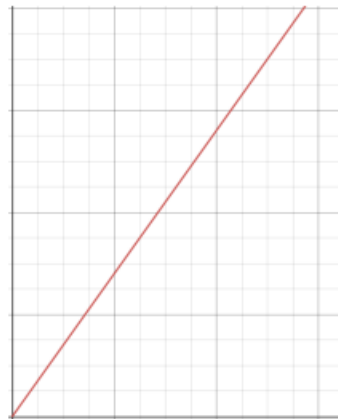
So one part is worth $210 \div 3 = 70$ nappies

Chloe has 7 parts so has a total of $70 \times 7 = 490$ nappies

Direct Proportion

Examples of direct proportionality and their respective graphs

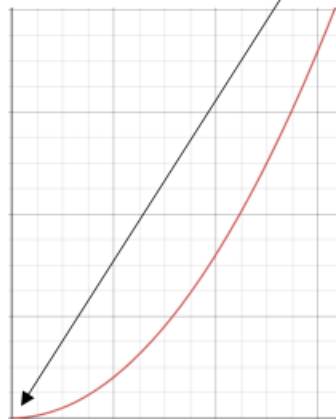
All direct proportion graphs start at (0, 0)



Linear proportionality

y is directly proportional to x

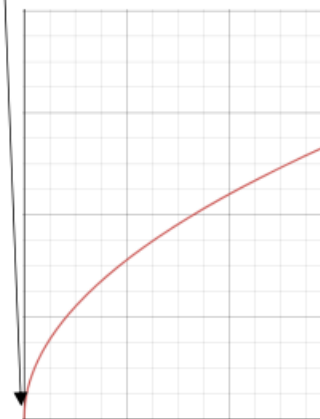
$$y \propto x$$



Quadratic proportionality

y is directly proportional to x^2

$$y \propto x^2$$



Square root proportionality

y is directly proportional to the square root of x

$$y \propto \sqrt{x}$$

The greek letter alpha.
Used to represent 2
things being proportional

e.g. E varies directly with the square of f .

When E equals 56, f equals 2.

a) Find the value of E when $f = 0.5$

b) Find the value of f when $E = 224$

"Varies directly" is another way of
saying "directly proportional to"

First, find the equation linking E and f .

$$E \propto f^2$$

$$E = kf^2$$

$$56 = k \times 2^2$$

$$56 = 4k$$

$$k = 56 \div 4 = 14$$

$$E = 14f^2$$

$$\text{a) } f = 0.5$$

$$E = 14 \times 0.5^2$$

$$E = 3.5$$

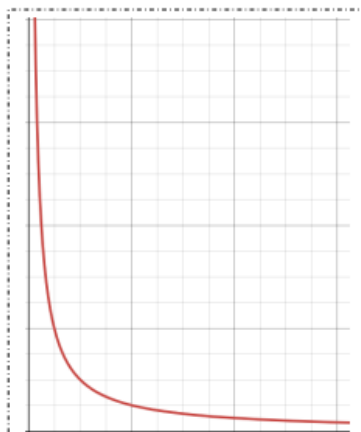
$$\text{b) } E = 224$$

$$224 = 14f^2 \quad (\text{divide by } 14)$$

$$16 = f^2 \quad (\text{square root})$$

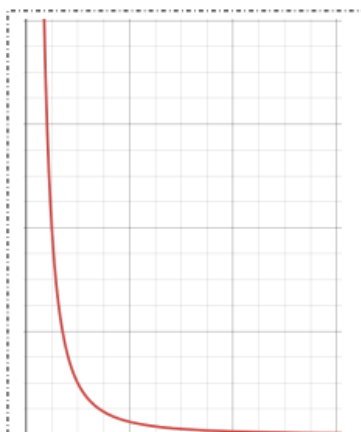
Inverse Proportion

Examples of inverse proportionality and their respective graphs



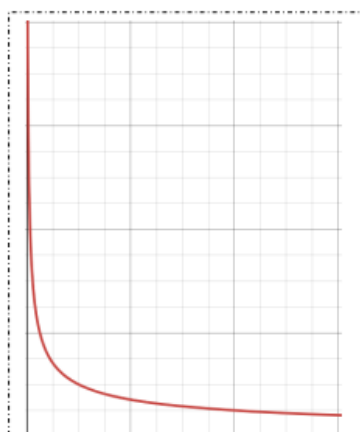
y is inversely proportional to x

$$y \propto \frac{1}{x}$$



y is inversely proportional to x^2

$$y \propto \frac{1}{x^2}$$



y is inversely proportional to the square root of x

$$y \propto \frac{1}{\sqrt{x}}$$

Inversely proportional graphs all have the same general shape.

e.g. C varies inversely with the square root of r .

When C equals 20, r equals 4.

a) Find the value of C when $r = 16$

b) Find the value of r when $C = 4$

First, find the equation linking C and r .

$$C \propto \frac{1}{\sqrt{r}}$$

$$C = \frac{k}{\sqrt{r}}$$

$$20 = \frac{k}{\sqrt{4}}$$

$$20 \times \sqrt{4} = k = 40$$

$$C = \frac{40}{\sqrt{r}}$$

a) $r = 16$

$$C = \frac{40}{\sqrt{16}} = \frac{40}{4} = 10$$

b) $C = 4$

$$4 = \frac{40}{\sqrt{r}}$$

$$4\sqrt{r} = 40$$

$$\sqrt{r} = 10$$

$$r = 10^2 = 100$$

($\times \sqrt{r}$)

($\div 4$)

(square)

	Year 10 Mathematics Knowledge Organiser	Topic Probability	What is relative frequency? Relative frequency is the number of times an event happens, divided by the total number of outcomes that took place in an experiment, known as the number of trials. It is sometimes also known as experimental probability . The more times an experiment is carried out, the more reliable the relative frequency will be and closer to the theoretical probability.

Probability Notation

Probability notation is an efficient way of writing the probability of events happening or not happening. To do this we use **set notation**, which is used when working with Venn diagrams.

Events are usually notated using capital letters, as well as the use of some greek letters.

$P(A)$	Event A	The probability of event A happening.
$P(A')$	Complement	The probability of event A not happening.
$P(A \cup B)$	Union	The probability of event A or B happening.
$P(A \cap B)$	Intersection	The probability of event A and B happening.

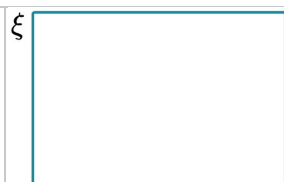
Venn diagram symbols are a collection of mathematical symbols that are used within set theory. Venn diagrams were created by mathematician John Venn and are used widely today within computer sciences, problem-solving and set theory.

Symbol	Description
$\{ \}$	Curly Brackets, contain all items in a set
,	Comma - separates all items in a set
'	Complement - the items not in a set
ξ	The Universal Set - contains all items in every set and subset required
ϕ	The Empty Set - contains no items

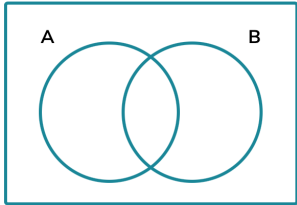
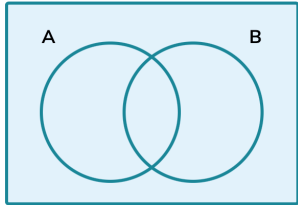
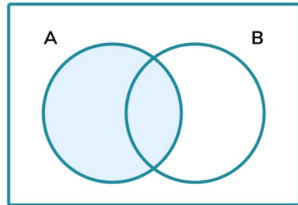
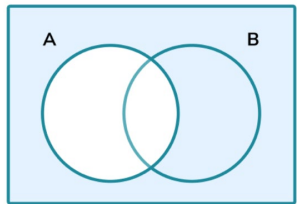
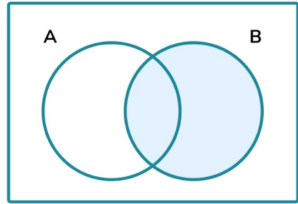
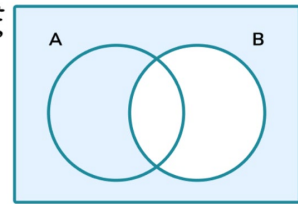
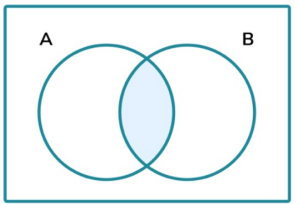
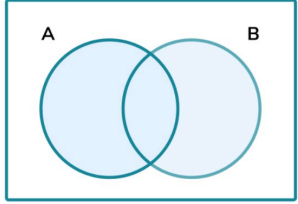
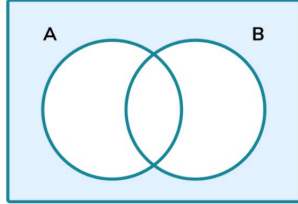
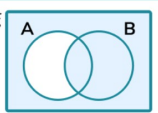
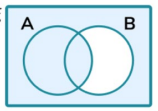
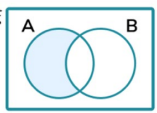
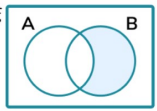
To describe a mathematical set using symbols, we need to know the symbols, and what they represent.



We will mainly look at two sets: set A and set B. The shaded region shows the items within the set. Firstly, we start with the universal set, ξ . We represent this as a rectangle and draw the symbol around the outside.



Venn Diagrams

ξ 	ξ 	ξ 
Here are the two sets, A and B	The universal set, ξ	A
ξ 	ξ 	ξ 
A'	B	B'
Everything but A is A'	B	Everything but B is B'
ξ 	ξ 	ξ 
$A \cap B$	$A \cup B$	$(A \cup B)'$
The intersection, A and B	The union of A and B, which we call A or B	The complement of A or B
ξ 	$A' \cup B$	Not A, or B (the complement of A, union B) Not A, union B
ξ 	$A \cup B'$	A, or Not B (A union the complement of B) A union Not B
ξ 	$A \cap B'$	Just A (A intersection B') A and not B
ξ 	$B \cap A'$	Just B (B intersection A') B and not A

The language of probability

The experiment is rolling the dice, the sample space is $\{1,2,3,4,5,6\}$, the event could be getting an even number $\{2,4,6\}$ and the outcome is (in this case) even or odd. These two outcomes are mutually exclusive as a number cannot be both odd and even.

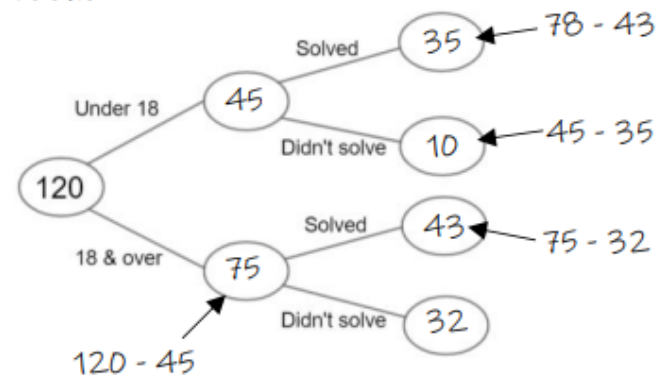
Probability of an event not happening

The sum of all probabilities of an experiment is 1.

If the probability of something occurring is $P(A)$, then the probability it does not occur is $1 - P(A)$.

Frequency trees

e.g. 120 people were given 3 minutes to solve a puzzle. 45 of the people who tried to solve the puzzle were under 18 years old. 78 of the people solved the puzzle. 32 of the people aged 18 and over did not solve the puzzle. Complete the frequency tree below.



The information given in the question determines the order of working. Here, we need to find the 75 first.

Relative Frequency

Tom and Sarah roll a 5 sided die. The results are shown below:

Number	Frequency of each number	
	Tom	Sarah
1	1	10
2	0	3
3	3	11
4	1	7
5	1	5

- Write down two estimations of the probability of rolling a 4
- Which person's data is likely to be the closest to the actual probability of rolling a 4?
- Using your answer to b), how many 4s would you expect in 200 rolls?

Answer: a) Tom rolled one 4 in 6 attempts so $\frac{1}{6}$

Sarah rolled seven 4s in 36 attempts so $\frac{7}{36}$
 36 is the sum of the frequency

- Sarah as she did the most trials.

- $\frac{7}{36} \times 200 = 38.888... = 39$ times.

Expectation = probability of success x number of trials

Two way tables

Useful for representing information where there are 2 different categories, e.g. boys/girls and favourite subject.

	English	Maths	Science	PE
Boys				
Girls				



Year 10 Mathematics Knowledge Organiser

Topic

Number
HCF, LCM,
Standard Form,
Surds

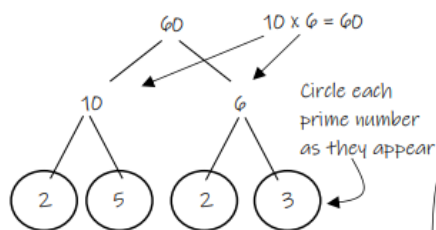
GCSE Number

Key words: Highest common factor, lowest common multiple, standard form, indices, product of prime factors, surds, rationalise

Express as a product of prime factors

Use a factor tree to find all the prime factors.
Then write the prime factors as a multiplication.

e.g. Write 60 as a product of prime factors



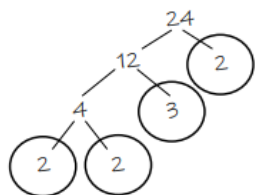
So the prime factors of 60 are 2, 3 and 5.

The product of prime factors for 60 is all of the circled numbers multiplied together which is:

$$2 \times 2 \times 3 \times 5 = 2^2 \times 3 \times 5$$

If you actually work this out it should equal 60

e.g. Write 24 as a product of prime factors



So as a product of prime factors 24 is

$$= 2 \times 2 \times 2 \times 3$$

$$= 2^3 \times 3$$

Indices notation for repeated multiplication

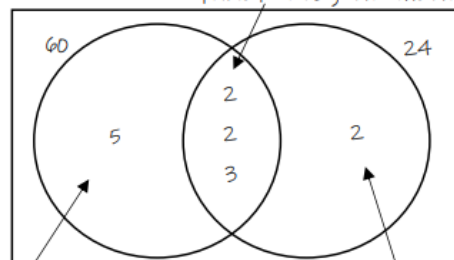
HCF and LCM using prime factorisation

The first step is to write each number as a product of prime factors, then put the factors into a Venn diagram.

e.g. Find the HCF and LCM of 60 and 24.

We already know that $60 = 2 \times 2 \times 3 \times 5$ and $24 = 2 \times 2 \times 2 \times 3$

They both have $2 \times 2 \times 3$ so these prime factors go into the intersection



60 also has a prime factor of 5 so this goes on its own as does the "extra" prime factor of 2 for 24.

The Highest Common Factor (HCF) is found by multiplying all the numbers in the intersection of the 2 circles.

So the HCF of 60 and 24 is $2 \times 2 \times 3 = 12$

The Lowest Common Multiple (LCM) is found by multiplying all the numbers in the 2 circles, including the intersection.

So the LCM of 60 and 24 is $5 \times 2 \times 2 \times 3 \times 2 = 120$

Prime factors of square and cube numbers

When written as a product of prime factors, all the prime factors of a square number can be written with even powers.

e.g. $36 = 2^2 \times 3^2$

$81 = 3^4$

$144 = 2^4 \times 3^2$

To square root these, you just divide the powers by 2.

Cube numbers have powers which are multiples of 3

e.g. $125 = 5^3$

$216 = 2^3 \times 3^3$

$512 = 2^9$

To cube root these you divide the powers by 3.

Index Laws

- Any number to the power of 1 is just that number.
e.g. $5^1 = 5$ and $a^1 = a$
- Any number other than 0, when raised to the power of 0 will equal 1.
e.g. $5^0 = 1$ and $a^0 = 1$
- When multiplying two numbers with the same base, it can be simplified by adding the powers.
e.g. $5^3 \times 5^7 = 5^{10}$ and $a^6 \times a^9 = a^{15}$
 a is the base
- When dividing two numbers with the same base, it can be simplified by subtracting the powers.
e.g. $5^7 \div 5^3 = 5^4$ and $a^{12} \div a^5 = a^7$
- When raising a power to another power, it can be simplified by multiplying the two powers together.
e.g. $(5^3)^2 = 5^6$ and $(a^4)^5 = a^{20}$

With these final 3 rules, if there are any coefficients in front of the terms, you treat them as you would any normal number.

e.g. $3a^2 \times 5a^6 = 15a^8$

3×5 $2 + 6$

$28a^8 \div 7a^3 = 4a^5$

$28 \div 7$ $8 - 3$

$(2a^2)^3 = 8a^6$

$2 \times 2 \times 2$ or 2^3 2×3

Standard Form

e.g. Write 876,000,000 in standard form.

$$876,000,000 = 8.76 \times 10^8 \text{ (} 10^8 \text{ as the digits have moved 8 places to the right)}$$

e.g. Write 0.000043 in standard form

$$0.000043 = 4.3 \times 10^{-5} \text{ (} 10^{-5} \text{ as the digits have moved 5 places to the left)}$$

e.g. Calculate $(3.2 \times 10^4) \times (4 \times 10^3)$. Give your answer in standard form.

First, work with the decimals. $3.2 \times 4 = 12.8$

Second, the powers of 10. $10^4 \times 10^3 = 10^7$

Which gives 12.8×10^7 . This is not standard form as 12.8 is more than 10.

So in standard form it is $1.28 \times 10 \times 10^7$ which gives us 1.28×10^8

Negative Powers

A number raised to a negative power is the **reciprocal** of that number raised to the positive power.

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

e.g. $5^{-3} = \frac{1}{5^3} = \frac{1}{125}$

e.g. $\left(\frac{2}{3}\right)^{-4} = \left(\frac{3}{2}\right)^4 = \frac{3^4}{2^4} = \frac{81}{16}$

Fractional Powers

The numerator of a fractional power is an ordinary power.

The denominator of a fractional power represents a root.

$$a^{\frac{x}{y}} = \sqrt[y]{a^x} = (\sqrt[y]{a})^x$$

e.g. $16^{\frac{3}{4}} = \sqrt[4]{16^3} = 2^3 = 8$

Simplifying Surds

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

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

Any coefficients in front of the surds are dealt with separately.

e.g. $2\sqrt{5} \times 3\sqrt{4} = 2 \times 3 \times \sqrt{5 \times 4} = 6\sqrt{20}$

We can use this in reverse to simplify the value inside the surd. Take out a factor of the surd which is a **square number** as this can be square rooted.

e.g. $\sqrt{48} = \sqrt{16} \times \sqrt{3} = 4\sqrt{3}$

Check your final answer to see if it can be further simplified. This will happen if you do not spot the largest factor when simplifying (similar to fractions).

e.g. $\sqrt{72} = \sqrt{9} \times \sqrt{8}$ 8 has a factor of 4 which is square

$$\begin{aligned} &= 3\sqrt{8} \\ &= 3\sqrt{4} \times \sqrt{2} \\ &= 3 \times 2 \times \sqrt{2} \\ &= 6\sqrt{2} \end{aligned}$$

Surds of the **same value** can be added and subtracted

e.g. $5\sqrt{3} + 4\sqrt{3} = 9\sqrt{3}$

Brackets and Surds

You can expand brackets with surds in them using normal methods

$$\begin{aligned}\text{e.g. } \sqrt{5}(3 + \sqrt{3}) &= 3 \times \sqrt{5} + \sqrt{3} \times \sqrt{5} \\ &= 3\sqrt{5} + \sqrt{15}\end{aligned}$$

For a double bracket, use whichever method you would normally use e.g. partitioning, multiplication grid, smiley face, etc.

$$\begin{aligned}\text{e.g. } (3 + \sqrt{5})(4 - \sqrt{5}) &= \\ 3 \times 4 &= 12 \\ 3 \times -\sqrt{5} &= -3\sqrt{5} \quad \leftarrow \\ \sqrt{5} \times 4 &= 4\sqrt{5} \quad \leftarrow \quad 4\sqrt{5} - 3\sqrt{5} = \sqrt{5} \\ \sqrt{5} \times \sqrt{5} &= \sqrt{25} = 5 \quad \leftarrow \\ &= 12 - 3\sqrt{5} + 4\sqrt{5} + 5 \\ &= 17 + \sqrt{5}\end{aligned}$$

Rationalising Surds

Rationalising a surd means to not have an irrational number on the denominator of the fraction. As most surds are irrational numbers we need to remove any surds from the denominator.

In order to achieve these we need to choose an appropriate value to multiply both the numerator and denominator by which will cancel out the surd.

If there is only a single term on the denominator, multiply by the surd which is on the denominator.

$$\text{e.g. Rationalise } \frac{4}{3\sqrt{5}}$$

$$\begin{aligned}\frac{4}{3\sqrt{5}} &= \frac{4}{3\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}} \\ &= \frac{4 \times \sqrt{5}}{3\sqrt{5} \times \sqrt{5}} \\ &= \frac{4\sqrt{5}}{3 \times 5} \\ &= \frac{4\sqrt{5}}{15}\end{aligned}$$

	Year 10 Mathematics Knowledge Organiser	Topic	Key terms – use www.amathsdictionaryforkids.com to help		
		Algebra Equations, Inequalities and Equations of Lines	Equations	a statement that the values of two mathematical expressions are equal (indicated by the sign =).	$y = 4x + 3$ is a linear equation .
			Inequalities	An inequality shows the relative sizes of numbers and unknowns.	The inequality $x > 3$ means x is greater than 3.
			Gradient	the steepness of a straight line.	The gradient of $y = 4x + 3$ is 4
			Intercept	Where a straight line crosses the y-axis.	The y-Intercept of $y = 4x + 3$ is 3

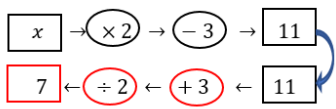
Solving Equations

Solving an equation allows us to find the value of an unknown.

Solving 2-Step

An equation that requires 2 inverse steps to solve.

$$2x - 3 = 11$$

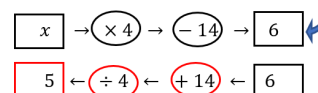


Solving with UOBS

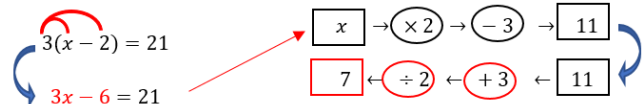
Eliminate the smallest x variable

$$3x + 6 = 7x - 14$$

$$\begin{array}{r} -3x \\ 6 = 4x - 14 \end{array}$$



Solving with Brackets - Expand then solve



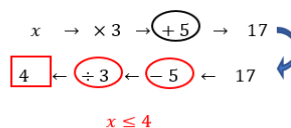
Inequalities

Inequalities represent a set of data that might be greater, less than or equal to a certain value.

Solving Inequalities

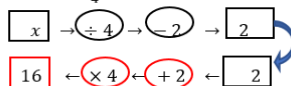
Inequalities are solved using the same method as if you were solving an equation.

$$3x + 5 \leq 17$$



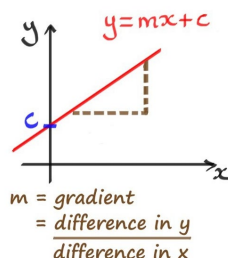
$$x \leq 4$$

$$\frac{x}{4} - 2 > 2$$



$$x > 16$$

The equation of a straight line



All linear graphs can be written in the form

$$y = mx + c$$

m is the gradient

How steep the line is

For every number you go to the right, it is the number you must go up (+mx) or down (-mx)

c is the y-Intercept

where the line crosses the y-axis at

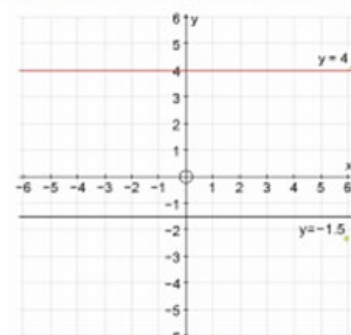
Sometimes this point is referred to as (0, c)

Graphs of form $x = a$



Notice that these graphs are vertical

Graphs of form $y = b$

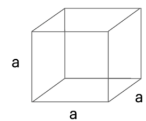
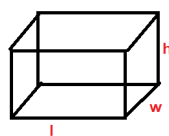
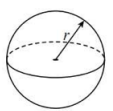
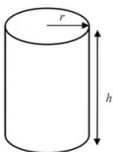
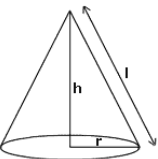


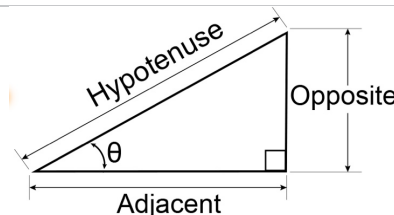
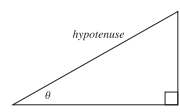
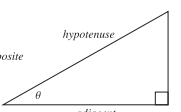
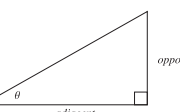
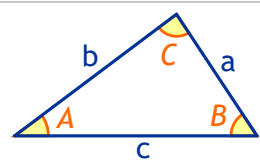
Notice that these graphs are horizontal

	Year 10 Mathematics Knowledge Organiser	Topic	Key terms – use www.amathsdictionaryforkids.com to help		
		Algebra Manipulation and Solving	Expression	Numbers, symbols and operators (such as + and ×) grouped together that show the value of something.	$3(4x + 9y + 5z)$ is an expression .
			Expanding brackets	"Expanding" means removing the () ... but we have to do it the right way!	Expand the expression $(x + 5)^2$
			Simplify	In general, it is simpler when it is easier to use .	Simplify $7x + 4y + 2x - 3y$
			Factorise	Finding what to multiply to get an expression.'	Factorise $x^2 + 8x - 20$

Expanding Brackets	Factorising	Inequalites
To expand brackets: multiply everything in the bracket by the term outside the bracket Single Bracket Expansion Expanding $2(g + 4)$ $= 2g + 8$ Expanding $5n(n + 3)$ $= 5n^2 + 15n$ 2 Single Brackets → Expand then Simplify $5(x + 3) + 6(x - 4)$ $5x + 15 + 6x - 24$ $=$ $11x - 9$ Double Bracket Expansion $(x + 7)(x - 4)$ $x^2 - 4x + 7x - 28$ $=$ $x^2 + 3x - 28$ How you expand it out is your call - Crab's Claw, FOIL, ... the choice is yours	Factorising is the opposite of expanding. You need to identify factors that the terms share... it could be a number (HCF), a letter or both! $5x + 15 = 5(x + 3)$ $10x - 12 = 2(5x - 6)$ $10xy + 15y = 5y(2x + 3)$ $8x^2y + 4xy^2 = 4xy(2x + y)$ Quadratics A quadratic is a 3-part equation that is equal to zero and has 2 roots. Factorise $x^2 + 7x - 18$ Find 2 numbers that $\times$ to -18 and $+$ to 7 2 numbers are 9 and -2 Answer $(x + 9)(x - 2)$ To solve, we equate the brackets to zero. $(x + 9)(x - 2) = 0$ $x + 9 = 0$ $x = -9$ $x - 2 = 0$ $x = +2$	Inequalities follow the same rules as equations (with one exception see second example!) As when solving equations, you need to get the unknown on its own on one side of the inequality. $2x - 5 \geq 7$ $+5$ $+5$ $2x \geq 12$ $\div 2$ $\div 2$ $x \geq 6$ The exception to the normal rules comes when you divide by a negative number. When you divide by a negative you reverse the symbol Add or subtract to isolate the variable term. Multiply or divide to solve for the variable. If multiply or divide by a negative number then reverse the inequality symbol. $-3x + 5 \leq -16$ -5 -5 Subtract $-3x \leq -21$ $\frac{-3x}{-3} \geq \frac{-21}{-3}$ Divide by -3, reverse inequality $x \geq 7$

 Year 10 Mathematics Knowledge Organiser	Topic	What is the etymology of the word hypotenuse?
	Summer: Key Formulae	The hypotenuse is the side of a right triangle that's opposite the 90-degree angle. It's a term specific to math, specifically geometry. Hypotenuse comes from the Greek word <i>hypoteinosa</i> which means "stretching under." The hypotenuse "stretches under" the right angle of a triangle, which has an angle of 90 degrees.

Geometry and Measures (cont.)		
Surface Area		
Diagram	Shape	Su. Area formula
	Cube	$6a^3$
	Cuboid	$2lw + 2wh + 2lh$ or $2(lw + wh + lh)$
	Sphere	$4\pi r^2$
	Cylinder	$2\pi r^2 + 2\pi rh$ $= 2\pi r(r + h)$
	Cone	πrl where l is the slant height of the cone
Other questions e.g. triangular prisms would involve the use of elements contained here and in the Area section		

Trigonometry
Trigonometry is a branch of mathematics that studies relationships between side lengths and angles of triangles.
Right-angled Triangles

The Trigonometrical Functions
$\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$SOH $\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$CAH $\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$TOA
All Triangles
In any triangle ABC where a , b and c are the length of the sides:

The Sine and Cosine Rules
sine rule: $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$
cosine rule: $a^2 = b^2 + c^2 - 2bc \cos A$

Algebra
Quadratic Formula
The solution of $ax^2 + bx + c = 0$ where $a \neq 0$ is
$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Key Terminology
Identity
An identity is an equation which is always true, no matter what values are substituted.
Examples
$4(x + 3) \equiv 4x + 12$ $(x + y)(x - y) \equiv x^2 - y^2$
Algebraic Manipulation
Algebraic manipulation refers to the manipulation of algebraic expressions, often into a simpler form or a form which is more easily handled and dealt with.
Examples
Being asked to solve an equation e.g. Solve $5x + 3 = 2x + 10$
Being asked to simplify an expression e.g. Expand and simplify $(3x + 4)(x - 1)$
Being asked to factorise an expression e.g. Factorise $x^2 + 5x - 24$

Communicable Diseases

Communicable (infectious) diseases are caused by pathogens such as bacteria and viruses that can be passed from one person to another e.g. bacteria and viruses. These are called **pathogens** (microorganisms that cause disease).

Pathogens can be spread by:

- **By air** (including droplet infection), including coughing, sneezing, and talking.
- **Direct contact**, which is common in plants, and includes STI transmission in humans.
- **By water**, where the pathogen enters the body through the digestive system.

Viral diseases

Viruses use your body cells as a host to reproduce, which destroys your cells. Examples include **measles**, **HIV/AIDS**, and **Tobacco mosaic virus (TMV)**.

Bacteria disease

Bacterial disease affect animals and plants. Examples include **salmonella**, **gonorrhoea**, and bacteria that cause **crown galls** in plants.

Diseases caused by fungi and protists

Fungal diseases include **athlete's foot** and **rose black spot disease**, a disease that affects plants and can often be devastating. Protist diseases are rare, but very dangerous, including malaria, which is spread between people by female mosquitos.

Preventing infections

Ignaz Semmelweis introduced the policy of **washing hands in hospitals**, which saw a large decrease in hospital deaths. Other pioneering discoveries included **Louis Pasteur developing vaccines** and **Joseph Lister developing antiseptic chemicals**.

Other methods of preventing infections are **hygiene**, **isolating infected individuals**, **destroying or controlling vectors**, and **vaccinations**.

Human defence responses



Figure 1 The scabs that restore the protective barrier of the skin and prevent pathogens getting in are made of red blood cells tangled in protein strands formed by platelets

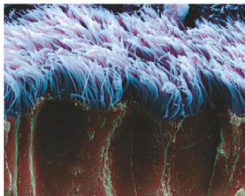


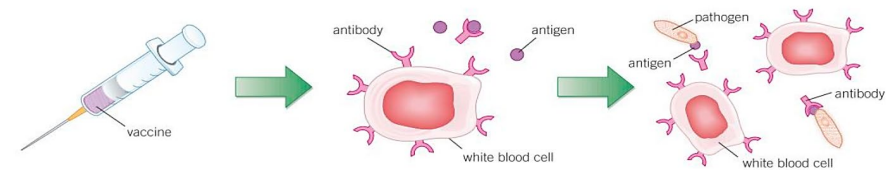
Figure 2 The cilia of the airways beat together to move mucus containing trapped pathogens away from the lungs

Table 1 Ways in which your white blood cells destroy pathogens and protect you against disease

Role of white blood cell	How it protects you against disease
Ingesting microorganisms 	Some white blood cells ingest (take in) pathogens, digesting and destroying them so they cannot make you ill.
Producing antibodies 	Some white blood cells produce special chemicals called antibodies. These target particular bacteria or viruses and destroy them. You need a unique antibody for each type of pathogen. When your white blood cells have produced antibodies once against a particular pathogen, they can be made very quickly if that pathogen gets into the body again. This stops you getting the disease twice.
Producing antitoxins 	Some white blood cells produce antitoxins. These counteract (cancel out) the toxins released by pathogens.

Preventing and treating disease

Vaccinations



Small amounts of dead or inactive pathogen are put into your body, often by injection.

The antigens in the vaccine stimulate your white blood cells into making antibodies. The antibodies destroy the antigens without any risk of you getting the disease.

You are immune to future infections by the pathogen. That's because your body can respond rapidly and make the correct antibody as if you had already had the disease.

Infected Vaccinated Not vaccinated but healthy

Herd immunity

Immunized people act as a barrier against infection, preventing its spread.



No herd immunity

Disease spreads more easily when fewer people are immunized.



Vaccines contain a **dead or weakened** version of a pathogen, allowing your white blood cells to practice destroying it. The aim of vaccines is to create **herd immunity** amongst a population.

Discovering and developing drugs

A lot of the compounds that are used in medicines today were discovered from plants and microorganisms. Examples include **aspirin**, **digitalis**, and the antibiotic **penicillin**, that was discovered by **Alexander Fleming**. It is important that bias is avoided when developing a drug, and so methods like **placebos**, **blind trials**, and **double blind trials** are often used by researchers.

Non-communicable diseases

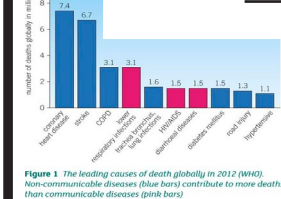


Figure 1 The leading causes of death globally in 2012 (WHO). Non-communicable diseases (blue bars) contribute to more deaths than communicable diseases (pink bars)

There are many **risk factors** for diseases. A risk factor is something that increases the chances of a disease developing. Risk factors include **family history**, **smoking**, **alcohol**, **poor diet**, **lack of exercise**, and **carcinogens** (agents that cause cancer).

Cancer

Cancerous cells are called **malignant tumours**, which are cells that have divided uncontrollably and can spread around the body. **Benign tumours** are cells that have divided uncontrollably but stay in one place. Risk factors of cancer include, **family history**, **smoking**, **ionising radiation**, and certain viruses such as **HPV**.

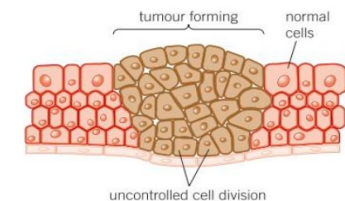


Figure 1 A tumour forms when there is uncontrolled cell division

Year 10 Biology: Infection and Response Key Vocabulary

Key word	Definition	Contextual Sentence
benign tumours	Growths of abnormal cells that are contained in one area, usually within a membrane, and do not invade other tissues.	Moles on the body are usually examples of benign tumours .
cancer	The common name for a malignant tumour, formed as a result of changes in cells that lead to uncontrolled growth and division.	Ionising radiation such as UV light is a risk factor for skin cancer .
carcinogens	Agents that cause cancer or significantly increase the risk of developing cancer.	Some chemicals found in smoking tobacco such as tar are carcinogens .
causal mechanism	Something that explains how one factor influences another.	Alcohol is a causal mechanism for cirrhosis of the liver.
clinical trials	Test potential new drugs on healthy and patient volunteers.	If successful at the first stage of clinical trials , the new drug will then be tested on sick volunteers.
communicable disease	Disease caused by pathogens that can be passed from one organism to another.	Viruses, bacteria, protists, and fungi are all examples of communicable diseases .
correlation	An apparent link or relationship between two factors.	Smoking is positively correlated to lung cancer.
ionising radiation	Has enough energy to cause ionisation in the materials it passes through, which in turn can make them biologically active and may result in mutation and cancer.	Sunbeds use ionising radiation .
malignant tumours	Invade neighbouring tissues and spread to different parts of the body in the blood where they form secondary tumours. They are also known as cancers.	Chemotherapy and radiotherapy are treatments for malignant tumours .
non-communicable diseases	Are not infectious and cannot be passed from one organism to another.	Cancer and diabetes are examples of non-communicable diseases .
pathogens	Microorganisms that cause disease.	Salmonella bacteria is an example of a pathogen .
placebo	A medicine that does not contain the active drug being tested, used in clinical trials of new medicines.	Researchers will often use a placebo when developing a new drug to avoid bias.
preclinical testing	The site of aerobic cellular respiration in a cell.	The sperm contains many mitochondria to release energy for movement.
sexually transmitted disease (STD)	Transmitted from an infected person to an uninfected person by unprotected sexual contact.	The use of condoms is one way to reduce the spread of sexually transmitted diseases (STDs) .
tumour	A mass of abnormally growing cells that forms when the cells do not respond to the normal mechanisms that control growth and when control of the cell cycle is lost.	The two types of tumours are benign and malignant.
vaccine	Dead or inactive pathogenic material used in vaccination to develop immunity to a disease in a healthy person.	Vaccines are used to create herd immunity amongst a population to reduce the spread of a pathogen.
virus	Pathogens that are much smaller than bacteria and can only reproduce inside living cells of other organisms.	Influenza and TMV are both examples of viruses .

Photosynthesis

Plants can make their own food by **photosynthesis**. This takes place in the green part of plants (especially the leaves) as well as in algae. It is an **endothermic** reaction as it requires an input of energy from the environment (light).

Photosynthesis can be summarised as follows:

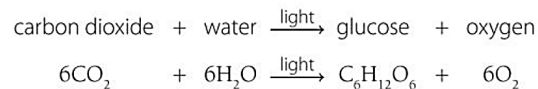
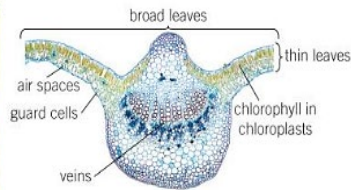


Figure 2 Leaves are well-adapted for photosynthesis

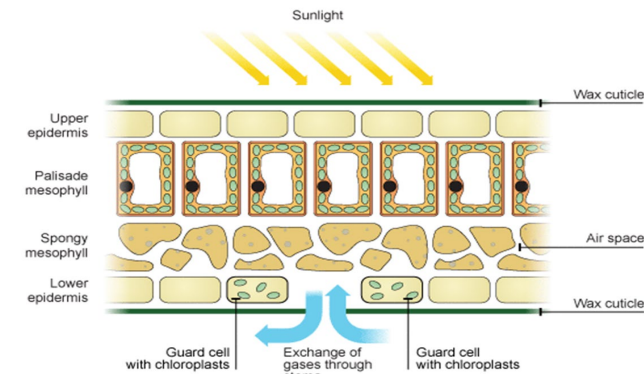


Leaf adaptations

Leaves are highly adapted for photosynthesis. Adaptations include:

- **Broad**, giving them a large surface area to absorb light.
- **Thin** for easy gas diffusion.
- Contain **chlorophyll** to absorb light.
- **Xylem** and **phloem** to transport water and minerals as well as sugars around the leaf.
- **Air spaces** to allow gas exchange.
- **Guard cells** to open and close **stomata** to regulate gas exchange.

Structure of a leaf



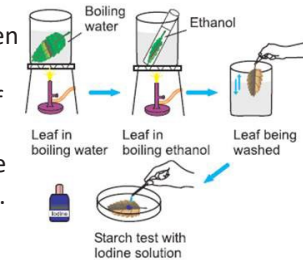
How plants use glucose

Plants use photosynthesis to make **glucose**, which they use for a variety of things. Plants may use glucose to:

- Build larger molecules such as **cellulose**, to strengthen cell walls, and **starch**, which is insoluble so is easier to store.
- Make **amino acids** which can be made into proteins which can be used in many ways, including to make enzymes.
- Make **lipids** such as fats and oils which can be used in cells as an energy store.

Testing a leaf for starch

You can test a leaf for starch to see if it has been photosynthesising, as starch is stored glucose. You first need to place the leaf in a test tube of ethanol and heat it in a water bath. This removes the green colouring. You then remove the leaf from the test tube and add iodine to it. If the iodine turns **blue/black** then the leaf contains starch.



The rate of photosynthesis

Plants need light, warmth, and carbon dioxide in order to photosynthesise. Sometimes, one or more of these things can be in short supply which limits the amount of photosynthesis. These are known as **limiting factors**.

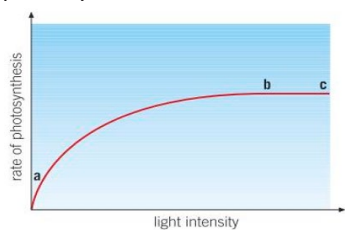


Figure 1 Investigating the effect of light intensity on the rate of photosynthesis

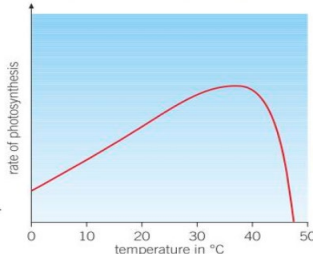


Figure 2 The effect of increasing temperature on the rate of photosynthesis

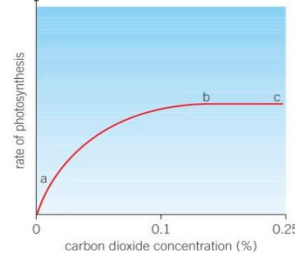
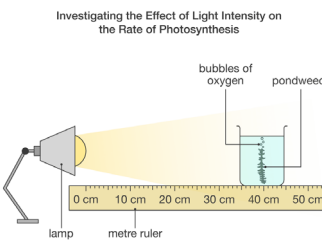


Figure 3 The effect of increasing carbon dioxide concentration on the rate of photosynthesis

Investigating how light intensity affects photosynthesis

You can investigate how light intensity affects the rate of photosynthesis by moving a lamp further away from some **pondweed** that is in water. As the pondweed photosynthesises, you can count the **number of bubbles of oxygen** produced in a given time, which gives an indication of the rate of photosynthesis. The closer the lamp to the pondweed, the greater the number of bubbles.



Making the most of photosynthesis (Higher)

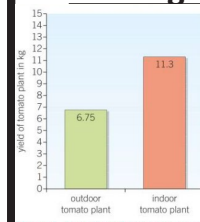


Figure 1 One piece of American research showed the crop yield for tomatoes was almost doubled in a greenhouse



Figure 2 By controlling the temperature, light, and carbon dioxide levels in a greenhouse like this you can produce the biggest possible crops.

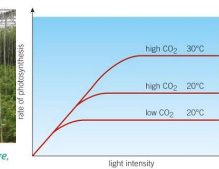


Figure 3 Growers need to look at this type of data to help them decide the best economic condition for growing their plants. The cost of providing the conditions that give the very highest yields may be too expensive and may wipe out the profits from the bigger, cleaner crop

Key word	Definition	Contextual Sentence
endothermic reaction	A reaction that requires a transfer of energy from the environment.	Photosynthesis is an endothermic reaction as it takes in light energy from its' surroundings.
glucose	A simple sugar.	Plants use carbon dioxide and water, as well as taking in light, to make glucose and oxygen.
limiting factors	Limit the rate of a reaction, for example photosynthesis.	Carbon dioxide is often a limiting factor for photosynthesis as the Earth's atmosphere is made from only 0.04% carbon dioxide.
photosynthesis	The process by which plants make food using carbon dioxide, water, and light.	The rate photosynthesis is greatest in bright, warm, carbon dioxide rich environments.

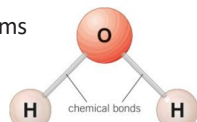
Atoms

Atoms are the smallest part of a substance that can exist. If all the atoms are the same, the substance is known as an **element**.

Molecules

A **molecule** is when two or more **atoms** are chemically bonded together. For example, look at the diagram of a water **molecule**.

Pure water will always have twice as many hydrogen atoms as oxygen atoms. That means its chemical formula is written as H_2O .



Compound

A **compound** is when two or more different **elements** chemically bond together.

Formula Writing

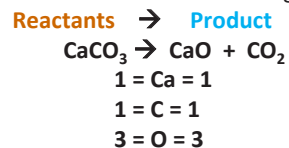
If there is no subscript after the atom's symbol in a chemical formula, it is read as "1", which means the ratio of H atoms compared to O atoms is 2:1

Chemical equations

Chemical equations show the chemicals used, called **reactants** and then new chemicals it forms, are called the **products** of a reaction.

Chemical equations

Using symbol equations helps you to see how much of each substance is involved in a reaction. For example, calcium carbonate **decomposes** (breaks down) when heated. You can show the reaction using a symbol equation like this;



States & symbols

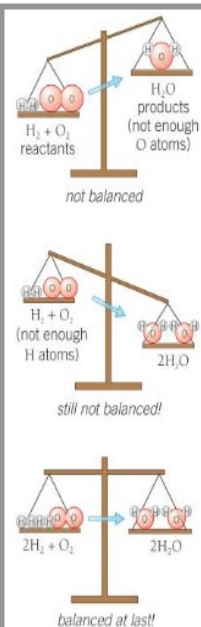
This is what state the substance is in at a given temperature.

This could be

solid (s),
liquid (l)
gas (g)

Substances have a melting point and a boiling point.

In chemistry, we also give a state symbol to substances dissolved in water. This is known as an **aqueous solution** with the state symbol being **(aq)**.



This equation is balanced; there is the same number of each type of **atoms** on both sides of the equation. You can see this from the counting under the equation and from the diagram on the right.

This is very important because **atoms** cannot be created nor destroyed in a chemical reaction. This means that;

"The total mass of the products formed in a reaction is equal to the total mass of the reactants" (which is the Law of Conservation.)

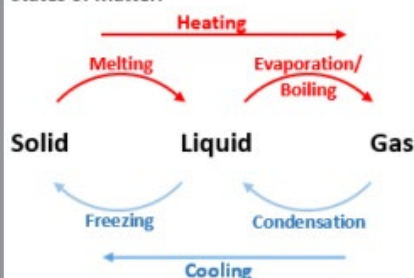
Changing states

You can see on the graph below that when a substance changes state. The line of the graph stops rising when a substance changes state.

Here, a **solid** is changing to a liquid. The reason it stops rising is that enough **energy** is transferred from the surrounding area to the solid so forces between the particles in the solid break apart from their fixed position it is no longer a **solid**. Once this happens the transfer of **energy** from the surroundings to the substance causes the temperature to continue to rise.

Compounds	Mixtures
Compounds have a fixed composition (the ratio of elements is always the same in any particular compound).	Mixtures have no fixed composition (the proportions vary depending on the amount of each substance mixed together).
Chemical reaction must be used to separate the elements in a compound.	The different elements or compounds in a mixture can be separated (by physical means, using the difference in properties of each substance in the mixture).
There are chemical bonds between atoms of the different elements in the compound.	There are no chemical bonds between atoms of the different substances in a mixture

States of Matter:



State of matter energy diagram

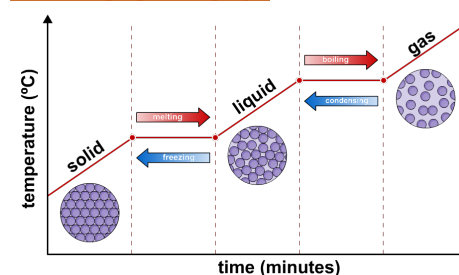
To the left is a diagram of the **changes of state**. If you increase or decrease the energy of the substances the state will change (e.g. solid → liquid).

Solids are held together in a fixed pattern/shape and have a fixed volume. **Solids** can not be compressed (squashed).

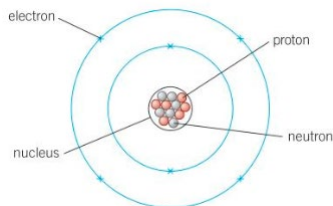
Liquids have a fixed volume and the particles are packed close together in a random order moving over each other, this allows them to flow and change shape.

Gases have no fixed shape or volume. The particles move around at a much faster speed. The **gases** will fill the area given but they can be compressed.

The changing state graph



Year 10 Atomic Structure & The Periodic Table



Atomic structure

Atoms contain sub-atomic particles. **protons**, **neutrons** and **Electrons**. **Protons** and **neutrons** are found in the centre of the atom, called its **nucleus** and **electrons** are found in **energy shells** around the **nucleus**. This **nucleus** is not the same as what is found in plant cells.

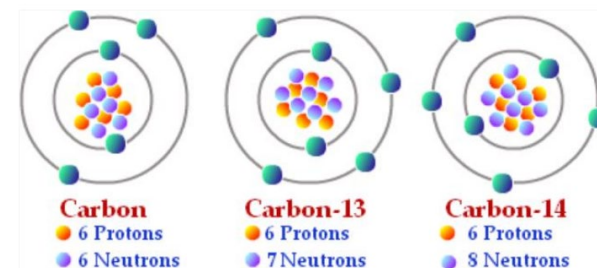
Sub-atomic Particle	Mass	Charge
Proton	1	+
Neutron	1	No charge
Electron	1/2000	-

Atomic number

All the atoms of a particular element have the same number of **protons**. For example, Na has eleven **protons** in its **nucleus**. The number of **protons** in each atom is called its **atomic number**.

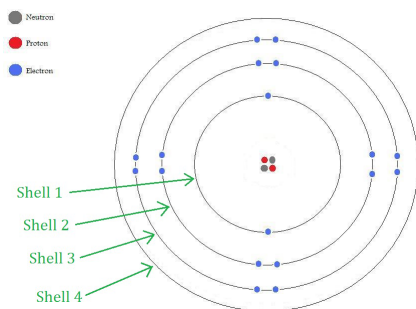
Isotopes

Atoms of the same element with the same number of protons but with different numbers of neutrons are called **ISOTOPES** e.g.

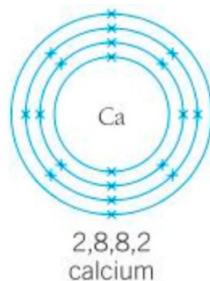


Electron Structure

The electrons in an atom are arranged in energy shells (levels). The lowest energy level (the 1st shell) can hold up to a maximum of 2 electrons, the next energy level (2nd shell) can hold a maximum of 8 electrons and so on. You need to be able to draw the atoms from Hydrogen to calcium.



Calcium has the structure of 2,8,8,2



Properties of Alkali metals

The characteristic **properties** of the alkali metals are:

- They are **soft** and can be cut by a knife. Softness increases going down the group
- They have a **low density**. Lithium, sodium and potassium float on water.
- They have **low melting and boiling points**.

These **properties** mean that the alkali metal do also share some **properties** with typical metals:

- They are **good conductors of heat** and **electricity**.
- They are **shiny**. This is only seen when alkali metals are cut.

Reactions of alkali metals

The alkali metals are **highly reactive**, they react with oxygen and water. They can also react with acid, however, the reaction is extremely dangerous. We can use word and symbol equations to represent the reactions.

Electron configuration and alkali metals

The alkali metals all have one **electron** in their outer shell. This means that:

- They are found in group 1 of the periodic table
- They have similar physical **properties**
- They can readily lose the outer shell **electron** to form positive ions with a +1 charge and a full outer shell.

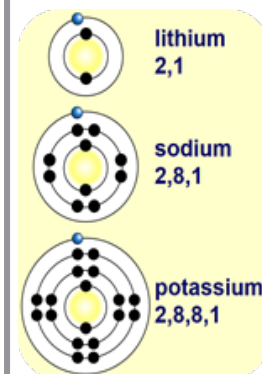
Group 7, The Halogens

Reactivity decreases going down Group 7. To explain this you consider the same factors you look at with alkali metals.

- The shielding effect of the inner **electrons**
- The size of the **atom**
- The nuclear charge

Halogen Properties

They have **low melting points** and **boiling points**. Their melting points and boiling points increase going down the group. They are **poor conductors of heat** and **energy**.



Group 7 Halogen	F — F F ₂	Cl — Cl Cl ₂	Br — Br Br ₂	I — I I ₂
Melting Point (°C)	-220	-101	-7	114
Boiling Point (°C)	-188	-35	59	184

Reactivity can be explained by how easily an **electron** is lost or gained to form an **ion**.

Displacement Reactions

A more reactive halogen will **displace** a less reactive halogen from solutions of its salts. For example; chlorine will displace bromide **ions**, which form bromine **molecules**

	How the halogens react with hydrogen
$F_{2(g)} + H_{2(g)} \rightarrow 2HF_{(g)}$	Explosive, even at $-200^{\circ}C$ and in the dark.
$F_{2(g)} + H_{2(g)} \rightarrow 2HF_{(g)}$	Explosive in sunlight but slow to react in the dark.
$F_{2(g)} + H_{2(g)} \rightarrow 2HF_{(g)}$	Only reacts at over $300^{\circ}C$ in the presence of a platinum catalyst
$F_{2(g)} + H_{2(g)} \rightarrow 2HF_{(g)}$	Only reacts over $300^{\circ}C$ in the presence of a platinum catalyst (very slow, reversible)

chlorine + potassium bromide $\rightarrow$ potassium chloride + bromine



Explaining the trends

You can explain trends in reactivity as you go down the group in terms of the attraction between **electrons** in the outermost shell and the **nucleus**.

This electrostatic attraction depends on;

- The distance between the outermost **electrons** and the **nucleus**.
- The number of occupied inner shells (energy levels) of **electrons**, which provide a shielding effect.
- The size of the positive charge on the **nucleus** (called the nuclear charge).

19	F
	fluorine
9	
35	Cl
	chlorine
17	
80	Br
	bromine
35	
127	I
	iodine
53	
210	At
	astatine
85	

Li	↓ getting more reactive
Na	
K	
Rb	
Cs	

F	↓ getting less reactive
Cl	
Br	
I	
At	

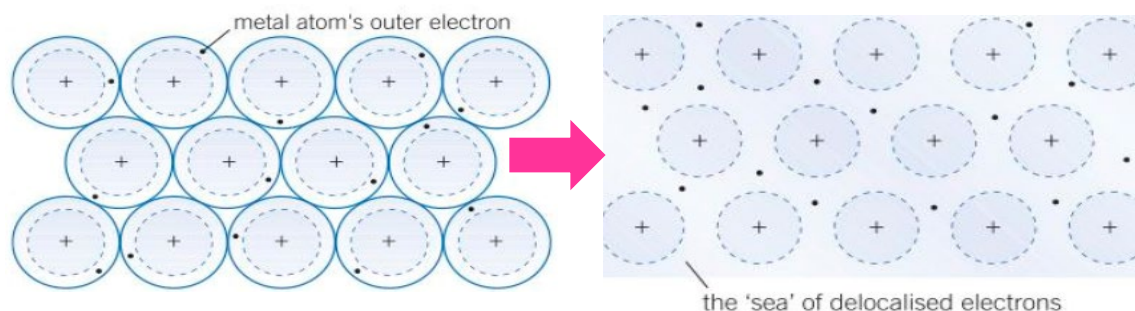
Metallic Bonding

Metal **ions** are formed and the outer shell **electrons** (delocalised **electron**) from each **atom** can move throughout the structure

Bonding in metals

Metals will lose **electrons** and form **ions**, just like in ionic bonding, but instead of transferring the outer shell **electrons**, they will "float" around the **atom**. We call these **electrons** delocalised **electrons**. The form layered structure.

The **electrostatic forces** between the positive **ion** and the negative **electrons** will strongly hold the **atoms** together in a regular lattice structure. This means that metals will need a lot of **energy** to break the strong **electrostatic forces** of attraction. This is the reason why metals have a high melting and boiling points and is a solid at room temperature ($20^{\circ}C$)



Why can you shape metals?

Metals can be hammered and bent into different shapes (this is known as being malleable), and drawn out into wires (known as ductile) because the layers of **atoms** in pure metal are able to slide over each other. The **atoms** in pure metal, such as iron, are arranged in closely packed layers. This regular arrangement allows the **atoms** to slide over one another quite easily. This is why pure iron is relatively soft and easily bent into shape

Uses of Metals

Due to the giant metallic structure, metals are very versatile. They can be used for

- Electrical wires due to being ductile.
- Pots & pans due to the ability to conduct heat and the ability to be malleable.
- Coins; due to their solid nature and shiny appearance
- Jewellery: easy to shape (malleable)
- Technology such as phones and computers.
- As alloys, the most common is stainless steel which is used by

An **atom** can achieve a full outer **electron** shell by losing or gaining **electrons**. This charged **atom** is called an **ion**.

Why do atoms react together?

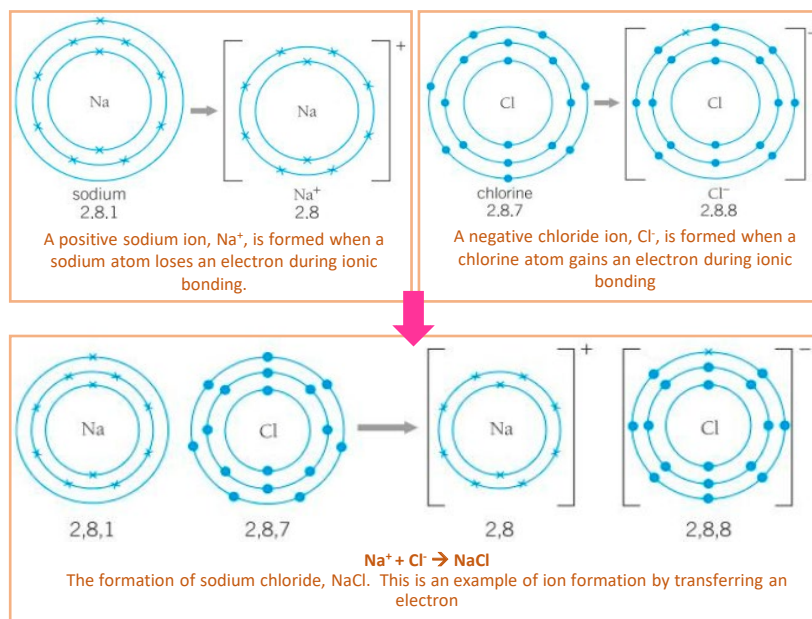
All **atoms** want a full outer shell. This is the reason chemical reactions happen. **Atoms** will either transfer **electrons** or share **electrons** depending on the bonding. There are 3 types of bonding; Ionic, Covalent and Metallic.

Positive Ions

When an **atom** loses an **electron** it becomes a positive **ion**. This is because they have more positive **protons**, but have less negative **electrons**. Therefore the overall charge is positive. See the diagram of Sodium.

Negative Ions

When an **atom** gains an **electron** it becomes a negative **ion**. This is because they have more negative **electrons**, than positive **protons**. This makes the overall charge of the **ion** negative. This can be seen using the chlorine diagram.



Charges on Ions

The charge on the **ion** depends on how many **electrons** they gain or lose. The table shows the general ones.

Transition metals will form the **ion** based on the roman numbers in its name; Iron (II) oxide will form a Fe²⁺ **ion**

GROUP	ION
1	+1
2	+2
3	+3
4	Rarely form ions
5	-3
6	-2
7	-1
0	Don't form ions as they have a full outer shell

Ionic bonding occurs when a metal and a non-metal combine. This process creates an **electrostatic force** that joins a positive ion and negative ion together, resulting in what is known as an ionic bond.

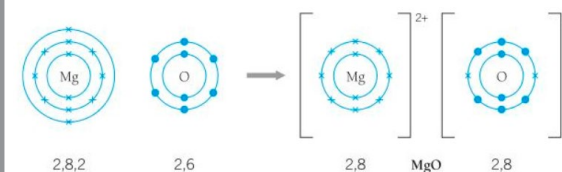
Ionic bonding: Calcium Chloride

Calcium needs to lose two **electrons** from its outer shell. Chlorine can only gain one **electron**, so in this case you will need two chlorine **atoms** to bond with.

Ionic bonding: Magnesium oxide

As you can see from the diagram for ionic bonding, you can see that the magnesium **atom** loses 2 **electrons** from its outer shell forms a Mg²⁺ **ion** and it will transfer the two **electron** to the oxygen **atom**, forming a negative oxide **ion**, O²⁻.

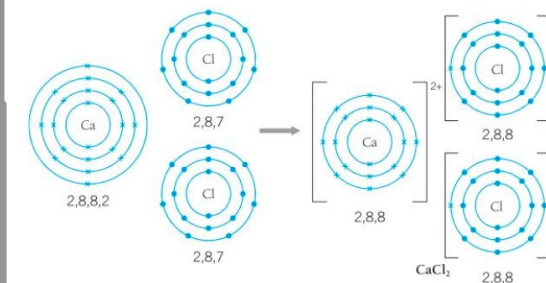
Notice how the **ions** are drawn in square brackets with the charge written in the top right.



Force of Attraction

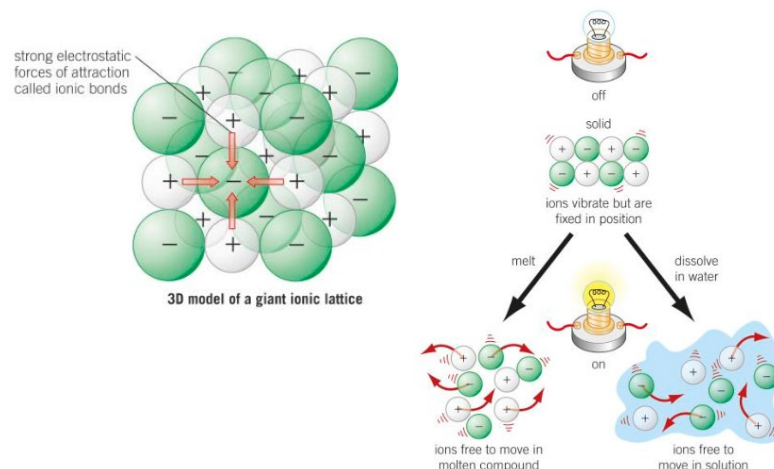
The force between the positive **ion** and the negative **ion** is called **electrostatic force**.

Looking at the sodium chloride where one **electron** is transferred, whereas magnesium oxide transfers two **electrons**. This means that's magnesium oxide has a stronger bond than sodium chloride



Properties of Ionic Substances

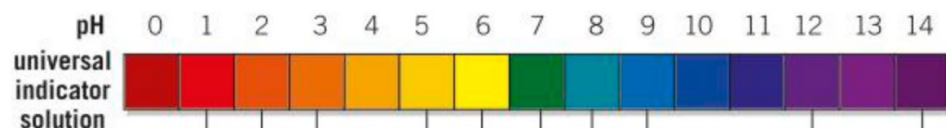
When an ionic substance is molten or in a solution, it can conduct electricity. This is due to the free movement of ions that carry the electrical charge. However, solid ionic substances are unable to conduct electricity as their ions are in a fixed position and cannot move or carry the electrical charge.



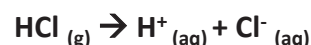
Ionic Compound Properties

Ionic Solid	Molten Ionic Compound	Ionic Compound in Solution
Ions are fixed in position in a giant lattice structure. They vibrate but cannot move around. It does not conduct electricity.	High temperatures provides enough energy to overcome the many strong forces of attraction between the ions. Ions are free to move around within the molten compound. It does conduct electricity.	Water molecules separate ions from the lattice. Ions are free to move around within the solution. It does conduct electricity.

Neutralisation and the pH scale

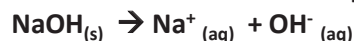


All **acids** release H^+ (aq) ions when added to water. It is this excess of H^+ (aq) ions that makes a solution **acidic**. An **acidic** solution is less than 7 on the pH scale.



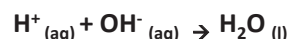
The greater the concentration of H^+ ions the lower the pH value.

All **alkalis** release OH^- ions when added to water, the excess OH^- ions make the solution **alkaline**. An **alkaline** solution is above 7 on the pH scale

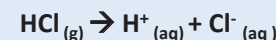


The greater the concentration of OH^- ions the higher the pH value

A value of 7 indicates that the substance is **neutral**. Water is an example of a neutral substance. The **ionic equation** for the formation of water is;



Strong and weak acids



In this reaction **ALL or 100 %** of HCl **ionises** or dissociates into ions, we call this a **Strong Acid**. Other examples are Sulphuric acid and Nitric acid.

For some acids, only a few H^+ ionise into ions for example Ethanoic acid. This is the reason why it is a **weak acid**



The concentration of H^+ ions is related to pH values as follows

$$\text{pH } 1 = 0.1\text{M}$$

$$\text{pH } 2 = 0.01\text{M}$$

$$\text{pH } 3 = 0.001\text{M}$$

$$\text{pH } 4 = 0.0001\text{M}$$

As the concentration of H^+ ions decreases by a factor of 10. This is called the order of magnitude, the pH value will increase by one unit.

Therefore if we make a solution 10 times more dilute the pH value increases by 1.

Speed

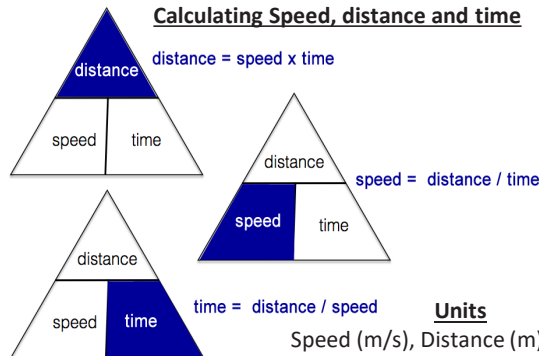
Speed is the distance travelled by an object in a certain amount of time.

Speed is a **scalar** object, it only has a magnitude and it doesn't not matter about its direction.

Velocity is how far some thing travels in a certain time in a certain direction.

Velocity is a **vector** quantity, it has a magnitude and a direction.

Calculating Speed, distance and time



Acceleration

Acceleration is the **rate of change in speed** (or velocity)

It can be calculated using the equation

$$\text{Acceleration} = \frac{\text{change in speed}}{\text{time}}$$

$$a = \frac{v - u}{t}$$

Which can be written as

$$a = \text{acceleration (m/s}^2\text{)}$$

$$u = \text{end velocity (m/s)}$$

$$v = \text{start velocity (m/s)}$$

$$t = \text{time (s)}$$

Another way to calculate acceleration

$$v^2 - u^2 = 2as$$

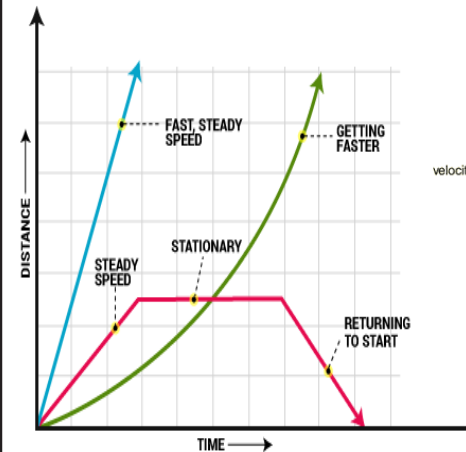
$$a = \text{acceleration (m/s}^2\text{)}$$

$$u = \text{end velocity (m/s)}$$

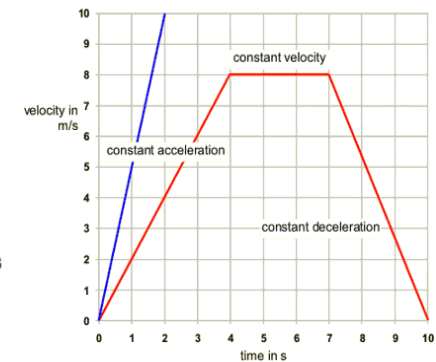
$$v = \text{start velocity (m/s)}$$

$$s = \text{displacement/ distance (m)}$$

Distance- Time Graphs



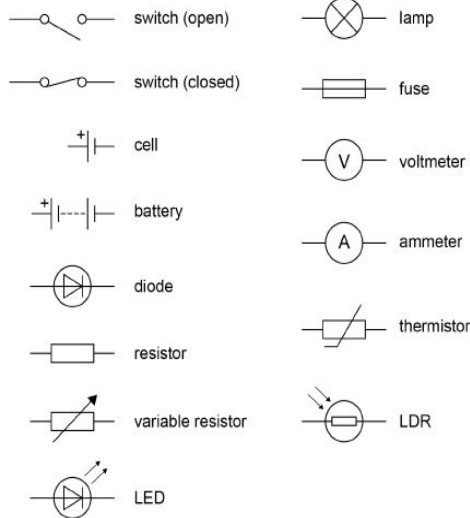
Velocity- Time Graphs



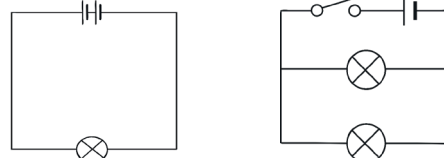
Key Vocabulary	Definition	Contextual Sentence
Acceleration	change of velocity per second (in metres per second per second, m/s ²)	The acceleration of the car increased as the driver pressed the pedal harder.
Deceleration	change of velocity per second when an object slows down	The deceleration of the car was caused by the driver pressing the breaks.
Displacement	distance in a given direction	The boat had a displacement of 120m North
Gradient	change of the quantity plotted on the y-axis divided by the change of the quantity plotted on the x-axis	You can find the speed of an object on a distance – time graph by taking the gradient .
Tangent	a straight line drawn to touch a point on a curve so it has the same gradient as the curve at that point	A tangent can be used to find acceleration on a graph that shows a non-uniform velocity.
Velocity	speed in a given direction (in metres/second, m/s)	An object travelling in a circle will have a constant speed but a changing velocity .

Year 10 Physics: Electricity Basics Knowledge

Circuit Symbols



Series vs Parallel



Current: Is the same at any point in the circuit
 $I_1 = I_2 = I_3$

Current: Is shared across branches, equals the power source.
 $I_1 = I_2 + I_3$

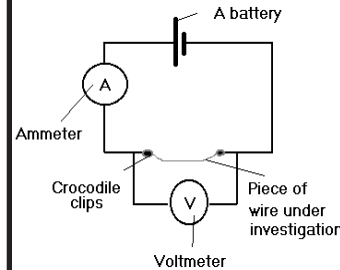
PD: Is split between the components
 $V_1 = V_2 + V_3$

PD: Each branch equals the PD across the cell.
 $V_1 = V_2 = V_3$

Resistance: Total resistance equals the sum of each individual resistor

Resistance: Total resistance is always less than the smallest resistor

Investigating Resistance



Ammeter Measures current, must be placed in **series**

Voltmeter Measures potential difference, must be placed in **parallel**

1. Connect the circuit as shown in the diagram above.
2. Connect the crocodile clips to the resistance wire, 100 cm apart.
3. Record the reading on the ammeter and on the voltmeter.
4. Move one of the crocodile clips closer until they are 90 cm apart.
5. Record the new readings on the ammeter and the voltmeter.
6. Repeat the previous steps reducing the length of the wire by 10 cm each time down to a minimum length of 10 cm.
7. Use the results to calculate the resistance of each length of wire by using $R = V/I$, where R is resistance, V is voltage and I is current.
8. Plot a graph of resistance against length for the resistance wire

Equation

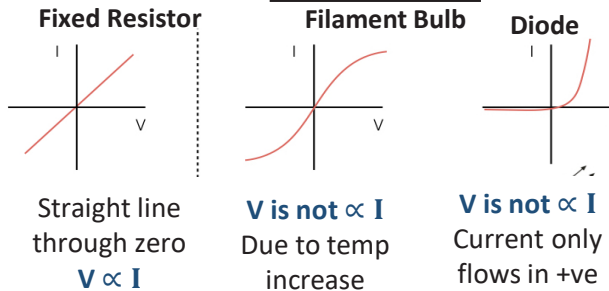
Symbol

Units

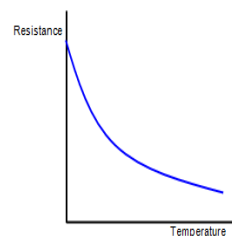
Charge Flow = Charge x Time	$Q=It$	Charge- coulomb (C) Current- Amp (A) Time- Second (s)
PD = Current x resistance	$V=IR$	PD – volts (V) Current- Amp (A) Resistance- Ohm (Ω)
Power = Current x PD	$P=IV$	Power- Watt (W) Current- Amp (A) PD – volts (V)
Power = current ² x resistance	$P=I^2R$	Power- Watt (W) Current- Amp (A) Resistance- Ohm (Ω)
Energy = power x time	$E=Pt$	Energy- Joule (J) Power- Watt (W) Time- Second (s)
Energy = charge x PD	$E=QV$	Energy- Joule (J) Charge- coulomb (C) PD – volts (V)

Ohm's Law Potential Difference is directly proportional to current, assuming temperature is kept constant or $V=IR$

IV Characteristics

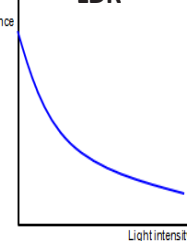


Thermistor

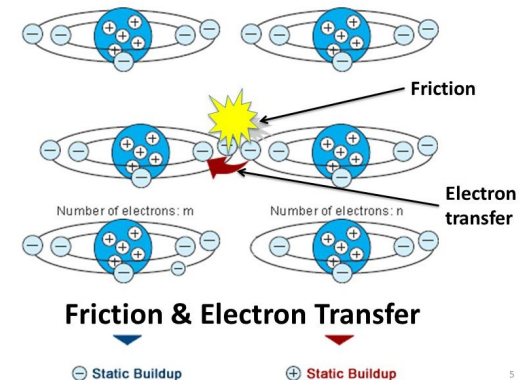
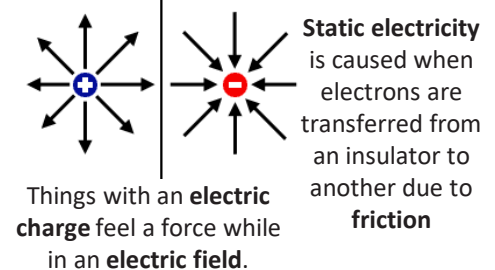


Resistance decrease as temperature/light intensity increases

LDR



Static Electricity (Physics Only)



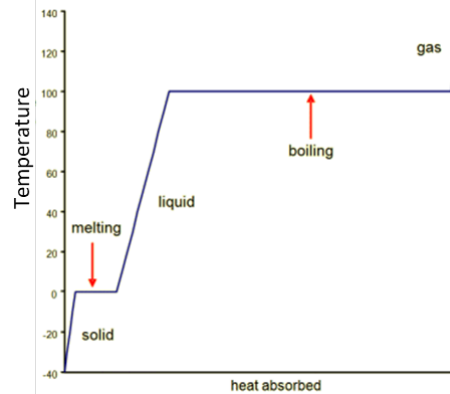
Types of Energy Transfer

Conduction	Convection	Radiation
- Energy transferred by direct contact - Energy flows directly from warmer object to cooler object - Can occur within one object - Continues until object temperatures are equal	- Occurs in gases and liquids - Movement of large number of particles in same direction - Occurs due to difference in density - Cycle occurs while temperature differences exist	- Energy transferred by electromagnetic waves such as light, microwaves, and infrared radiation - All objects radiate energy - Can transfer energy through empty space

Thermal Conductivity

The higher the thermal conductivity of a material, the higher the rate of energy transfer by conduction across the material

Change of state



$$\text{Specific latent heat} = \frac{\text{energy, J}}{\text{mass, kg}}$$

- The freezing point of a substance is the same temperature as the **melting** point.
- The energy transferred to a substance as it changes state is called its **latent** heat.
- The energy stored by particles in a substance is its **internal** energy.
- This energy is sum of the **kinetic** energy of particles and their **potential** energy.
- The specific latent heat of fusion is the energy needed to change **1kg** of a substance from **solid** to **liquid** at its **melting point** (without a change in temperature)
- The specific latent heat of vaporisation of a substance is the energy needed to change **1kg** from **liquid** to **vapour**, at its **boiling point** (without a change in temperature)

Specific Heat Capacity

The **specific heat capacity** of a substance is defined as:

- The amount of **energy** required to raise the temperature of 1 kg of a substance by **1 °C**

The amount of energy needed to raise the temperature of a given mass of a substance by a given amount can be calculated using the equation:

$$\Delta E = mc\Delta\theta$$

Where:

- ΔE = change in **energy**, in joules (J)
- m = **mass**, in kilograms (kg)
- c = **specific heat capacity**, in joules per kilogram per degree Celsius ($\text{J/kg } ^\circ\text{C}$)
- $\Delta\theta$ = **change in temperature**, in degrees Celsius ($^\circ\text{C}$)

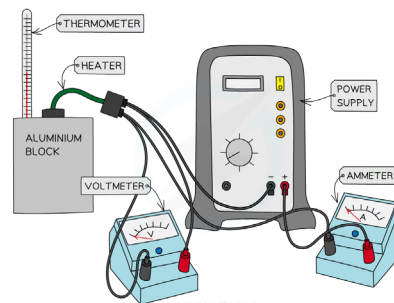
Required Practical 1: Specific Heat Capacity

Variables

IV = Time,

DV = Temperature,

CV= Material of the block, Current, Voltage



- Set up apparatus.
- Measure the initial temp of block
- Turn on the power
- Take temp every 1 min for 20 minutes
- Switch off the power supply.
- Monitor the thermometer and record the final temperature reached for the block

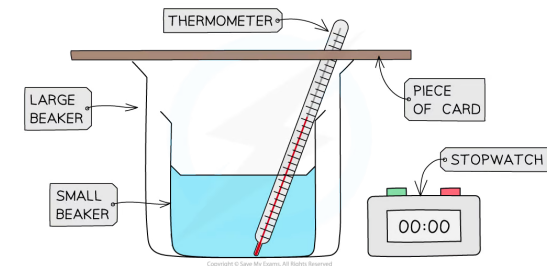
Required Practical 2: Insulation

Variables

IV = Time, t (s)

DV = Temperature, T ($^\circ\text{C}$)

CV: Volume of water, The temp of the water at the start, the thickness of material



- Set up the apparatus
- Place a piece of cardboard over the beakers as a lid
- Record the temp of water at star, then every 2 mins for 20 minutes,
- Repeat the experiment, changing the material

Year 10 Physics: Electricity and Thermal Energy Vocab

Key Vocabulary	Definition	Contextual Sentence
Ampere (A)	The unit of current.	The phone had a current rating of 2A
Coulomb (C)	The unit of charge	One amp is the same as one Coulomb per second
Diode	A non-ohmic conductor that has a much higher resistance in one direction (its reverse direction) than in the other direction (its forward direction).	A diode is used in a circuit to control the direction the current is able to flow in.
Electric Field	A charged object (X) creates an electric field around itself, which causes a non-contact force on any other charged object in the field.	The electron is repelled due to the electric field of the object.
Ion	A charged atom or molecule.	The atom lost an electron to become a positive ion .
Ohm's Law	The current through a resistor at constant temperature is directly proportional to the potential difference across the resistor	The fixed resistor obeys Ohm's Law .
Parallel	Components connected in a circuit so that the potential difference is the same across each one.	When a bulb breaks in a parallel circuit, the other bulbs remain lit.
Potential Difference	A measure of the work done or energy transferred to the lamp by each coulomb of charge that passes through it. The unit of potential difference is the volt (V)	The potential difference was determined using the voltmeter.
Resistance	Resistance (in ohms, Ω) = potential difference (in volts, V) $\div$ current (in amperes, A)	As the electrons moved through the conductor they encountered resistance .
Series	Components connected in a circuit in such a way that the same current passes through them.	When a bulb breaks in a series circuit, the other bulbs do not remain lit.
Static Electricity	Electric charge stored on insulated objects	A static shock is caused by a build up of static charge .
Volts	The unit of potential difference.	The UK mains potential difference is 230V

Key Vocabulary	Definition	Contextual Sentence
internal energy	the energy of the particles of a substance due to their individual motion and positions	The internal energy of the substance increased as it was heated.
latent heat	the energy transferred to or from a substance when it changes its state	The unit of latent heat is J/Kg
specific latent heat of fusion L_f	energy needed to melt 1 kg of a substance with no change of temperature	The specific latent heat of fusion for water is 330 KJ/kg
specific latent heat of vaporisation L_v	energy needed to boil away 1 kg of a substance with no change of temperature	The specific latent heat of vaporisation for water is 2,260 KJ/kg
Specific heat capacity	The amount of energy required to raise the temperature of 1 kg of a substance by 1 °C	Water requires a large amount of energy to heat up as it has a high specific heat capacity
Thermal conductivity	The rate of thermal energy transfer through a material	Metal is used to make frying pans as it has a high thermal conductivity

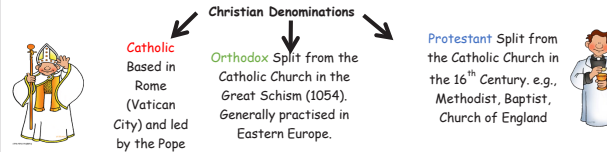
Religious Studies Year 10 Knowledge Organiser Autumn Term 2

AQA Christian Beliefs

1. The nature of God
2. God as omnipotent, loving and just
3. The Oneness of God and the Trinity
4. Different Christian beliefs about Creation
5. The incarnation and Jesus, the Son of God
6. The crucifixion
7. The resurrection and ascension
8. Resurrection and life after death
9. The afterlife and judgement
10. Heaven and hell
11. Sin and salvation
12. The role of Christ in salvation

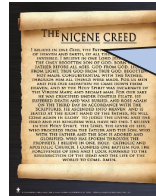


1. The nature of God



Christian beliefs about God

- There is only **one** God.
- God is the **creator** of all that exists.
- People have a **relationship** with God through **prayer**.
- **Neither male nor female** but has qualities of both.
- God is **holy** (worthy of worship)
- **Jesus** is the **Son of God**.



"We believe in One God."
The Nicene Creed

2. God as omnipotent, loving and just

Omnipotent	Benevolent	Just
• God is the supreme being who is all powerful. • God has unlimited authority. • God shows his power when he created the world. • "Anything is possible with God." When the Angel Gabriel told Mary she was pregnant even though she was a virgin.	• God uses his power to do good. • Showed his love by creating humans and caring/giving his love to them. • Showed his love by sending Jesus, his son to earth to die so humans could gain salvation. • "God so loved the world that he gave his one and only son."	• God is a just (fair) judge on humanity. • God will never support injustice or prejudice. • God will judge the living and the dead on judgement day (the end of the world) and decide whether people will go to heaven or hell.

What is the Problem of Evil and Suffering?

If God is loving- why does he allow people to suffer?

If God is powerful- why does he not prevent evil and suffering?

If God is just- why does he allow injustices to take place?

Responses to the Problem of Evil and Suffering:

1. Human's have free will- take responsibility for our own actions.
2. The Devil- Tempts us into going against God and committing sins.
3. Life is a test- we need to show God we are worthy of heaven.

3. The Oneness of God and the Trinity

God the Father

- Creator of all life
- Father to his children
- Omnipotent, omnibenevolent, omniscient and omnipresent.



God the Holy Spirit

- Unseen power of God at work in the world.
- Influences, guides and sustains life on earth.

God the Son

- God incarnate (in human form) Jesus.
- Fully human and fully divine (God) at the same time.

4. Different Christian beliefs about Creation

Day 1: Day and Night	
Day 2: The Sky	
Day 3: The seas, land and all vegetation and plants	
Day 4: The lights in the sky: the sun, moon and stars	
Day 5: Fish of the sea and birds of the sky	
Day 6: Animals of the Land and Adam and Eve	
Day 7: God rested and said it was good.	

"In the beginning, God created the heavens and the earth... and the spirit of God was hovering over the waters."
Genesis 1:1-3c

"In the beginning was the Word and the Word was with God and the Word was God."
John 1:1-3

Different Christian interpretations

1. **Fundamentalist**- the Creation story is exactly as it is described in the Bible
2. **Linguistic**- There may be misunderstandings in the language of the story e.g., 'day' in Hebrew doesn't mean a day in English.
3. **Mythical**- It is a myth- the Bible explains that God made the world and why, but it does not fully explain how.
4. **Scientific**- Science can work with the Christian creation story in Genesis. God caused the Big Bang.



5. The incarnation, and Jesus the Son of God

The Incarnation-

This is the belief that Jesus is God in a human form. The Angel Gabriel appeared to Mary to tell her that she was pregnant. This was a miraculous birth as Mary was a virgin. She had become pregnant through the Holy Spirit. The virgin conception is evidence that Jesus was the Son of God and part of the Trinity. Jesus lived for around 30 years.

Son of God, Messiah, Christ

Jesus was fully human and fully God. This explains his powers (e.g. miracles). His teachings therefore have authority as they are the word of God- ***"The word became flesh and made his dwelling among us."*** John 1:14. Most Jews expected the Messiah who they believed would be a warrior king. They did not believe this to be Jesus. Christians accept that Jesus is the Messiah. He is often called Christ (anointed one).



6. The Crucifixion

- Being fully God but also fully human, Jesus suffered pain.
- A centurion accepted that Jesus was the Son of God.
- The guards made sure Jesus was dead. His body was put in a cave before the Sabbath day.



- It shows that Christians will be forgiven for their sins if they are truly sorry.
- God understands human suffering because of the suffering of his son, Jesus.
- Suffering is a part of human life, just as it was part of Jesus' life.
- It shows that Jesus was fully God and fully man.
- It teaches Christians that forgiveness is possible- Criminals on the cross.
- Teaches Christians that God loves them

"Surely this man was the Son of God!" Mark 15:39



"Jesus called out with a loud voice, 'Father, into your hands I commit my spirit.' When he had said this, he breathed his last." Luke 23:46

7. The resurrection and ascension

- On the Sunday morning, some of Jesus' female followers visited the tomb.
- Jesus' body was not there. The women were told by an angel that Jesus had risen from the dead.
- Over the next few days, Jesus appeared to several people as he had prophesied.

It is important because...

- Shows the power of good over evil and life over death.
- Means sin will be forgiven.
- Christians will too be resurrected if they accept Jesus.
- Shows that there is life after death.



Ascension After meeting with his disciples and asking them to carry on his work, Jesus left them for the last time. He returned to the Father in Heaven. This was 40 days after the resurrection. When Jesus ascended into Heaven.

It is important because...
- Shows that Jesus is with God in heaven.
- Prepare for God to send the Holy Spirit to provide comfort and guidance.

8. Resurrection and Life after Death

Some Christians believe a person's soul is **resurrected soon after death**. Other Christians believe the **dead will be resurrected on the Day of Judgement**.

How will the resurrection happen?

Catholic and Orthodox Christians believe in **physical (bodily) resurrection** - this will be a transformed body. (The best version of itself)

Other Christians believe that **resurrection will just be spiritual** (resurrection of the soul) rather than physical.

Gives hope of a future life with Jesus

Gives confidence in the face of death

Inspires Christians to live their life as God expects

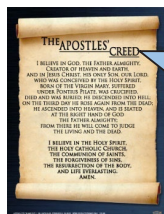
Means life after death is real

A belief in the resurrection

Shows Christians how much God loves them.

9. The afterlife and judgement

-- Christians believe they will be resurrected and receive eternal life. This is a gift from God and is dependant upon faith (belief) in God.
- They will be judged by God, being sent to Heaven or Hell (or purgatory).
- Some believe judgement will happen soon after death. Others believe judgement will occur on the Day of Judgement.



"Jesus will come against to judge the living and the dead... I believe in the resurrection of the body and the life everlasting."

The Apostles Creed

Judgement

- Christians believe that after they die, God will judge them on their actions as well as their faith in God.
- The Parable of the sheep and goats describes how God will judge people.
- This parable teaches Christians that in serving others, they are serving Jesus.
- Jesus said that having faith in him and following his teachings is essential for being able to reach heaven.

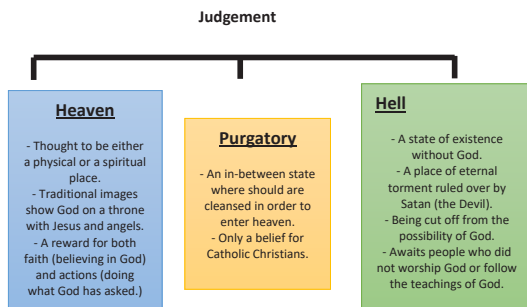


"I am the way, the truth and the life. No one comes to the Father except through me."

John 14:6



10. Heaven and Hell

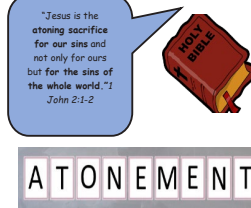


12. The role of Christ in salvation

- Jesus' crucifixion made up for the original sin of Adam and Eve. The death of Jesus was necessary to restore the relationship between God and humanity.

- Jesus' resurrection shows the goodness of Jesus defeated the evil of sin. God accepted Jesus' sacrifice on behalf of humanity. Jesus' resurrection means humans can now receive forgiveness for their sins. Jesus' death and resurrection made it possible for all to receive eternal life.

- Atonement removed the effects of sin and allows people to restore [fix] their relationship with God.
- Through his sacrifice, Jesus took the sins of humanity on himself and paid the debt. He atoned for the sins of humanity.
- This sacrifice makes it possible for all who follow Jesus to receive eternal life.

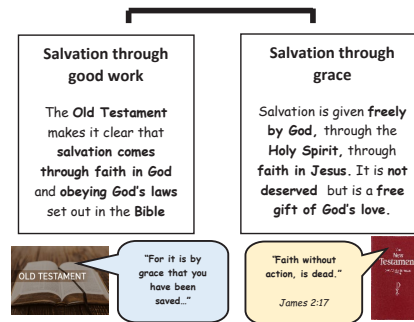


11. Sin and salvation

Sin: - Thoughts or actions that separates humans from God. - Some sins are illegal (e.g. murder). - Others are legal but against the laws of God (e.g. adultery).	Original Sin: - The belief that we are born with a built in tendency to sin. - Come from Adam and Eve who committed the first sin. - Caused separation from God.
Free Will: - Humans should use freedom to make choices God approves of. - God provides guidance on how to live, for example, the Ten Commandments.	Salvation: - To be saved from sin and its consequences and to be granted eternal life with God. - Salvation repairs the damage caused by sin.

Salvation

There are two main Christian ideas about how salvation comes about:



Key Vocabulary

Denominations	A sub group within a bigger group. E.g. Roman Catholics, Protestants and Orthodox Christians are all different <u>Denominations</u> of Christianity.
Monotheistic	A group that believes in one supreme being/God. Christianity is a <u>Monotheistic</u> religion as they believe in only one God.
Omnipotent	A Christian belief about God; this means God is all powerful.
Benevolent	A Christian belief about God; this means God is all loving.
Omniscient	A Christian belief about God; this means God is all knowing.
Transcendent	A Christian belief about God; This means God is outside of our understanding, we will never truly understand God and God's actions.
Immanent	A Christian belief about God; God is present in the Human world.
The Trinity	The three parts that make up God in Christianity. They are The Father, The Son and The Holy Spirit.
Nicene Creed	A statement of Christian belief, which highlights the main beliefs about Christianity and God. Developed by the Council of Nicaea.
Creation	In Christianity, this refers to the creation of the Universe and everything in it including the Earth.
Free will	Humans can choose what they want to do.
Original Sin	Sin is an action against God. Original sin was obtained by humans when Adam and Eve disobeyed God and ate the forbidden fruit of the tree of knowledge of Good and Evil.
Moral evil	Evil caused by human action. E.g. Violence and war.
Natural evil	Evil caused by nature. E.g. Natural disasters and disease.

Inconsistent triad	The belief that God, who is supposed to be all loving, all powerful and all knowing, cannot exist if there is evil.
Afterlife	Belief in what happens after you die.
Heaven	Christians believe that after you die and live a good life you go to Heaven. It is a place free from pain and suffering and being in the presence of God.
Hell	Christians believe that if you live a bad life you go to Hell. This is a place full of pain and suffering and <u>not</u> being in the presence of God
Purgatory	A predominately Catholic Christian view on the afterlife. They believe that if you haven't asked for forgiveness for your sins during life you go to Purgatory. A place where you stay until you have suffered enough to pay for your sins. A place of purification.
Incarnation	The belief that Jesus is God in human form.
Crucifixion	An ancient Roman method of capital punishment where an individual is nailed to a cross by their wrists and feet. They eventually die from suffocation as the lungs cannot work correctly under the weight of the individual's body.
Resurrection	The act of rising from the dead.
Ascension	Refers to the event where Jesus <u>ascended</u> up to Heaven to sit on the right-hand side of God.
Salvation	To save someone. In Christianity <u>salvation</u> is granted to humans, which means that the relationship between God and humans has been repaired.
Atonement	Restoring the relationship between people and God through the life, death and resurrection of Jesus





AQA

Crime and Punishment

1. What is crime and punishment?
2. What are reasons for crime?
3. What are Christian attitudes to lawbreakers?
4. What are the aims of punishment?
5. What are religious attitudes to suffering?
6. What are the religious attitudes to the treatment of criminals?
7. What are religious attitudes to forgiveness?
8. What are religious attitudes to the death penalty?

Types of Crime

There are many different types of crime. Broadly speaking, you can separate them into three categories, sometimes these overlap.

- 1- **Crimes against the person:** e.g. physical abuse, hate crime, sexual assault, hate crimes, slander.
- 2- **Crimes against Property:** e.g. arson, vandalism, theft.
- 3- **Crimes against the state:** e.g. terrorism, political assassination, cyber hacking/terrorism.

The aims of punishment

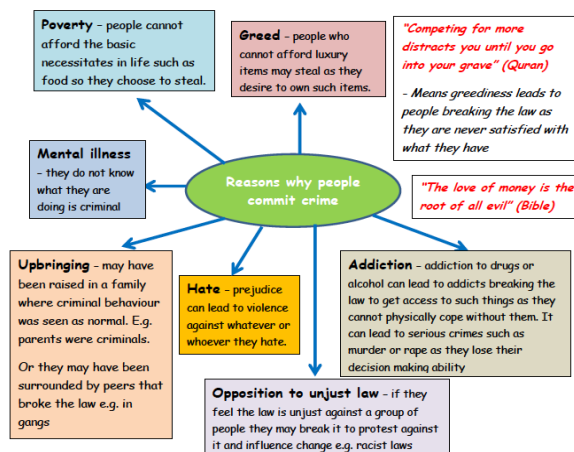
People are punished for a purpose. Often the aims of a punishment overlap, e.g. the death penalty acts to **deter** people from committing similar crimes and it aims to protect the public from the individual who is guilty of the crime. There are six recognised aims of punishment:

1. **Deterrence** - punishment should put people off committing crime
2. **Protection** - punishment should protect society from the criminal and the criminal from themselves
3. **Reformation** - punishment should reform the criminal
4. **Retribution** - punishment should make the criminal pay for what they have done wrong

Key Word	Definition
Capital punishment	Death penalty; state sanctioned execution for a capital offence; not legal in UK
Community service order	UK punishment involving the criminal doing a set number of hours of physical labour.
Conscience	Sense of right and wrong; guilty voice in our head; seen as the voice of God by many religious believers.
Corporal punishment	Punishment in which physical pain is inflicted on the criminal; not legal in the UK.
Crime	Action which breaks the law; can be against the person (e.g. murder), against property (e.g. vandalism), or against the state (e.g. treason).
Deterrence	Aim of punishment to put a person off committing a crime by the level of punishment.
Duty	What we have a responsibility to do.
Evil	Something or someone considered morally very wrong or wicked; often linked to the idea of a devil or other malevolent being.
Forgiveness	Letting go of blame against a person for wrongs they have done; moving on.
Hate crime	A crime committed because of prejudice, e.g. assaulting a person because they are gay.
Parole	Release of a criminal from prison under the condition they will meet with a parole officer who can monitor their behaviour.
Young offenders	Criminals under the age of 18.
Imprisonment	Locking someone up and taking away of civil liberties of a criminal.
Law	The rules a country demands its citizens follow, the breaking of which leads to punishment.

Christian attitudes towards good and evil intentions

- When Christians speak about evil criminal actions, they usually mean that the offence is profoundly immoral and wicked – it is an offence against God = **SIN**
- Most crimes such as murder, rape and theft are also religious offences. But not all religious offences are illegal e.g. adultery is a religious offence but it is not illegal in the UK



Christian Attitudes towards Law breakers

- Christianity teaches that **sin** is a part of human nature and that all people have the potential to commit a crime. This is shown in the story of the fall of **Adam and Eve** in **Genesis**, when they disobeyed God and ate the forbidden fruit.
- Many Christians believe that the **Bible** teaches the difference between right and wrong. Following God's will leads people to the right path; ignoring God's will leads to disaster.
- A typical set of guidelines from the Bible is the **Ten Commandments**. Christians should follow these guidelines to be good people. This belief is emphasised in the **gospel** books such as John:

"Anyone who does not do what is right is not a child of God."

- Some Christians will help the offenders to not re-offend, due to the teaching that you should *"hate the sin, not the sinner"*. They will treat the offender humanely and protect their human rights- *"love thy neighbour."*
- Other Christians will argue that the punishment needs to be as severe as the crime *"an eye for an eye"*.

Types of Punishment

Different methods are used to punish criminals for their offences. Each punishment is associated with different aims.

Punishment	How this meets an aim of punishment
Prison	deterrence/protection/reformation
Electronic tagging	deterrence/protection
Fines	retribution/reparation
Community service	reformation/retribution
Capital punishment	protection/deterrence
Probation	reform/vindication

Attitudes towards the treatment of Criminals

Corporal punishment



Christian Teachings

- Some fundamentalist Christians might accept it on the basis of Old Testament teaching such as: *"spare the rod and spoil the child"*.
- They might think corporal punishment has a deterrent value. Providing it is not unduly harsh, such punishment might actually benefit the offender in the long term.
- Most Christians think that harsh treatment of others shows a lack of love. It does not encourage the offender to think in terms of being forgiven and having a second chance. Moreover, Jesus' teaching *"that those who live by the sword die by the sword"* highlights its negative consequences.



Death penalty/ Capital Punishment



- Some Christians think it is the only just penalty for some acts of murder. They interpret *"an eye for an eye, a life for a life"* as sanctioning strict retribution. It means that the family of the victim will feel able to move on.
- Many denominations, e.g. the Anglican Church, oppose it as contrary to New Testament teaching to leave vengeance to God. Jesus rejected the 'eye for an eye' law with the words: *"If someone strikes you on the right cheek, turn to him the left also."*



Forgiveness



- In the Lord's Prayer, Christians say *"Forgive us our sins, as we forgive those who sin against us"*.
- When Peter asked Jesus whether it was sufficient to forgive someone seven times, Jesus replied, *"Not seven times but seventy times seven"*; there should be no limits.
- Some Christians think that forgiveness can only be offered to those who are sorry for what they have done. Without repentance, forgiveness is meaningless. Jesus said, *"If your brother sins, rebuke him; and if he repents, forgive him"*.



The Death Penalty Debate



Arguments For

- The Bible sets down the death penalty for some crimes, so it must be acceptable to God. This is often seen as **retribution**.
- The death penalty can give the families of the victim final 'closure'.
- The criminal can never reoffend.
- If you take a life, you forfeit your own right to life.
- St Thomas Aquinas** argued that peace in society was more important than reforming the sinner. He reflects the **Catholic Church's** teaching that the protection of the whole of society is more important than the individual.
- The Old Testament teaches *"an eye for an eye"*, which suggests that if someone takes a life then they should have their life taken from them.
- There are 36 crimes mentioned in the bible punishable by death.
- It shows the seriousness of the commandment *"thou shalt not kill"* and that murderers who have taken a life themselves should be put to death as punishment.

Arguments Against

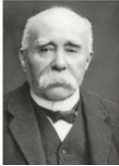
- The death penalty is inhumane brutalises society.
- We can never rule out the possibility of making mistakes- you cannot bring someone back to life if you execute them.
- Two wrongs do not make a right.
- "Thou shall not kill" 10 commandments
- The **sanctity of human life**. All human life is God-given and sacred. Only God has the right to take a life.
- Jesus said: *"You have heard it said an eye for an eye, but I tell you, if anyone slaps you on the right cheek, turn to him the other."* This is Jesus deliberately correcting the old testament 'an eye for an eye' teaching. Showing Jesus taught forgiveness.
- There are many examples of forgiveness in the Bible and Jesus taught it is important to forgive.
- Reform gives the opportunity for the criminal to change for the better.

Year 10 History Autumn Term- Peacemakers and the Treaty of Versailles

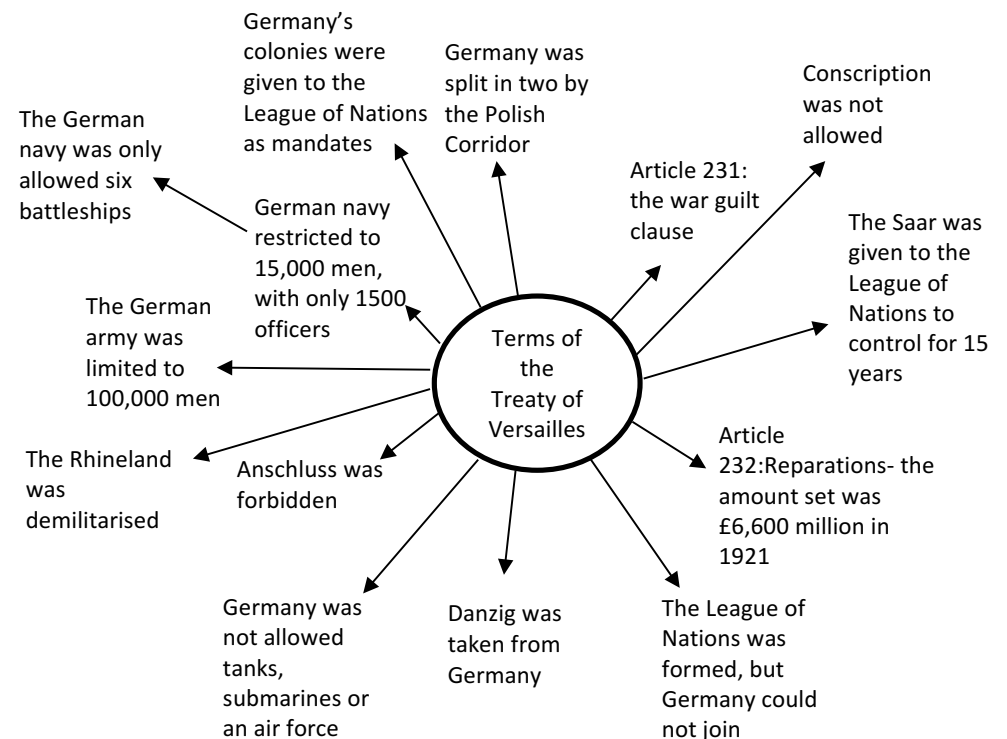
The First world war devastated Europe. 8 Million soldiers and a further 8 million civilians lay dead. Towns railways and farms had been destroyed. The world would never be the same again. When the leaders of the winning countries met at the Paris peace conference they had to decide the terms of the final peace treaties. There was a great deal of pressure of the Big Three to make a lasting peace, however each had their own aims.

The Treaty of Versailles was signed on the 28th June 1919. The final treaty was a Diktat, meaning that Germany were not allowed to negotiate terms. The Germans were unhappy with the final treaty, however the Big Three were also not satisfied with it.

11 November 1918	Signing of armistice led to the end of WW1
January 1919	Paris peace conference
June 1919	Signing of the Treaty of Versailles

Leader	Country	Aims
Georges Clemenceau 	France	- Wanted Germany to pay reparations to rebuild areas of France badly affected by war - Wanted revenge for all the lives lost - Aimed to weaken Germany so it could never attack again - Wanted to push German borders back to the Rhine so French people would feel safer
Davis Lloyd George 	Britain	- Wanted a cautious approach: The British public wanted to see Germany punished, but Lloyd George feared this would lead to Germany wanting revenge - Wanted to keep Germany strong so it could trade with Britain and act as a buffer to Communism - Aimed to gain German colonies to add to the British Empire - Wanted Naval supremacy by reducing Germany's navy
Woodrow Wilson 	USA	- Wanted a fair peace, so Germany would not seek revenge - Proposed the Fourteen points, including foundation of a League of Nations, Self determination and freedom of the seas; but the American public didn't want the USA to get involved in European affairs again.

Key Word	Definition
Demilitarise	Remove all military from the area
Allies	A group of countries that work together
Diktat	A forced treaty – Germany called the Treaty of Versailles a diktat or dictated peace
Big Three	Representatives of the most powerful winning countries – Britain, France and the USA
Conscription	Compulsory military service
Paris Peace conference	Meeting held at the Palace of Versailles in France at the end of the first World War, to decide how to punish the countries that had lost the war.



Year 10 History

Autumn Term- Reactions to the Treaty of Versailles

The Treaty of Versailles was signed and it immediately became international law. However not everyone was satisfied with the terms of the treaty. The Big Three had contrasting views on how Germany should be punished. Germany was outraged by the harsh terms they had been dealt.

The Treaty of Versailles dealt with Germany, however Germany had allies during the war. Austria-Hungary, Bulgaria and Turkey all had to be dealt with as well at the Paris peace conference

Country	Opinion on the Treaty of Versailles
Germany	- Germany was in turmoil at the end of the First World War, the Kaiser had fled to Holland after abdicating the throne. - The people of Germany were furious over the Treaty of Versailles. They perceived that the treaty would lead to financial ruin for Germany. - The Germans called the treaty a Diktat as they felt it had been dictated to them and they had been forced to sign. - The war guilt clause meant that Germany had to accept responsibility for starting the war. - They had been told they were winning the war, so felt like they had been stabbed in the back and betrayed by the government. People called those who had signed the armistice the November Criminals. - Germany felt like the treaty had left them vulnerable, without a large army to defend themselves they could be easily attacked. 13% of land was lost to other countries, this left 6 million German people no longer living in Germany.
Britain	- Lloyd George was pleased about Britain having naval supremacy over Germany and the British empire gaining more colonies. - Lloyd George was unhappy about the harsh reparations meaning Britain would lose trade with Germany. He was also concerned about the threat of possible future war. - British people generally thought the treaty was fair, and could even have been harsher. - Lloyd George was hailed as a hero, and newspapers said Britain would never be threatened by Germany again.
France	- Clemenceau was pleased about France gaining Alsace-Lorraine and that Germany had no army present in the Rhineland. - Clemenceau was unhappy about the reparations, he wanted Germany to pay more. He was also unhappy that Germany was allowed to have an army at all, even if it was a small one. Clemenceau had wanted the whole of the Rhineland to be taken away from Germany not just demilitarised. - Many people in France were furious – they believed that the treaty was nowhere near harsh enough and that Germany should suffer as much as France had done during the war. - The French people felt that Clemenceau had not done enough to get revenge and he was voted out at the next election. - There were a few terms that the people of France liked, such as gaining control of the Saar and its coalfields for 15 years.
USA	- Woodrow Wilson was pleased that the League of Nations was created. - Woodrow Wilson was unhappy that his Fourteen points were ignored in the treaty terms and the harshness of the treaty terms. - The USA had only joined the war in 1917 and no fighting took place in the USA, Americans did not want revenge in the same way as Britain and France. - Many people including Wilson thought the treaty was too harsh. - The USA wanted to follow a policy of isolationism. The US Senate refused to approve the treaty or to allow the USA to join the League of Nations.

Key Word	Definition
Isolationism	A policy in which a country does not get involved in Foreign affairs
Ratify	Agree with, make official
Abdicate	To give up the throne of a country
Weimar Republic	The democratic government that ruled Germany from 1918-1932

Country	Austria	Bulgaria	Hungary	Turkey
Name of Treaty	Treaty of St Germain	Treaty of Neuilly	Treaty of Trianon	Treaty of Sevres
Date	10 th September 1919	27 th November 1919	4th June 1920	10 th August 1920
Land	Land taken to create new countries Czechoslovakia and Yugoslavia	Land lost to Yugoslavia and Greece	Land lost to Romania, Czechoslovakia, Yugoslavia and Austria	Split up the Turkish Empire so Turkey lost nearly all its land in Europe
Reparations	Agreed in principal, but the amount was never fixed	£100 million	Agrees in principal, but the amount was never fixed	None
Military restrictions	30,000 in army, no conscriptions; no navy	20,000 in army; no conscriptions; no air force; only four battleships	30,000 in army; no conscription; only three patrol boats	50,000 in army; seven sailboats; six torpedo boats
Other terms	Forbidden to unite with Germany	None	None	Dardanelles and Bosphorus straits were opened to other countries

Year 10 History

Autumn Term- League of Nations formation and 1920s

During the First World War, many people wanted to set up an organisation that would encourage countries to work together when they had problems and work out their differences, rather than resorting to fighting. At the end of the war US president Woodrow Wilson wanted to set up the League of Nations. What was the League of Nations and why did it have limited powers?

The League had Two Main Aims

- 1) **To maintain peace** — using three different methods:
 - **Disarmament** involved reducing the number of weapons that each country had.
 - **Arbitration** meant helping countries to **talk** about their disputes rather than fight.
 - **Collective security** meant that if one country attacked another, League members would **act together** to **control** the aggressor.
- 2) **To encourage cooperation** — and help solve **economic** and **social** problems, such as disease, slavery, and poor working and living conditions.

The League was made up of Various Parts

All the members of the League followed a **Covenant** (agreement) of 26 Articles (rules). Articles 1 to 7 set up the structure of the League:

The Assembly

The Assembly met once a year to discuss matters like the membership of the League, as well as efforts to maintain world peace. Every country in the League had one vote at the Assembly. Decisions could only be made if everyone agreed on them.

The International Labour Organisation
This part of the League discussed and made suggestions to improve working conditions. It was made up of government officials, employers and workers from different countries.

The Council

The Council met at least four times a year. It had permanent members (Britain, France, Italy, Japan and later Germany) and temporary members. It dealt with international affairs and aimed to settle disputes. All members had a vote, but permanent members could veto (reject) Council decisions.

The Permanent Court of International Justice
This was made up of fifteen judges from different member countries. They were asked to settle international disputes.

The Secretariat

Carried out the work of the League, like a civil service.

- 1) **42** countries **joined** the League at the start. In the **1930s**, about **60** countries were members. This made the League seem **strong**.
- 2) The League also had a range of **agencies** and **commissions**, which worked on specific **humanitarian issues**. These included a **health** organisation, a commission for **refugees**, and a commission for **women's rights**. These commissions did some valuable work (see p.26).

Everyone hoped this would avoid another major war.

Key Word	Definition
Council	Members of the League of Nations who met once a year to discuss and vote on matters of international importance
Covenant	An agreement. This was set up to determine what could be expected of the League and its members
Unanimous	When everyone agrees
Veto	The right to reject a proposal

Problems with the League of Nations	The League of Nations resolved disputes in the 1920s:	The League of Nations struggled to resolve disputes in the 1920s:
The USA didn't join the League of Nations. Wilson was ill and the senate rejected it.	Upper Silesia was a region with valuable industry. A referendum was held for citizens to choose whether to be ruled by Poland or Germany, but the result was too close to be decisive. In 1921, the League suggested dividing the area between the two countries, which both sides (and most citizens) accepted.	Corfu , a Greek island was occupied by Italy in 1923 in response to an Italian diplomat being shot dead in Greece. At first, the League told Italy to leave and fined the Greeks. Italy ignored this and demanded compensation from Greece. The League changed its mind and agreed that Greece should give money to Italy and apologise. Greece obeyed and Italy withdrew its troops.
Germany were not allowed to join the League because they lost the war. The USSR were not allowed to join because they were communist	The Aaland Islands sit almost exactly halfway between Sweden and Finland. They belonged to Finland, but most people there wanted to be ruled by Sweden. In 1921, the League decided that the islands should remain Finnish, and both sides accepted this.	Vilna was chosen as the capital of the newly-formed Lithuania after the First World War, but most of the population were Polish. Poland seized Vilna in April 1919 and refused to give it up when told to do so by the League. On this occasion, the League was powerless to stop military aggression.
Britain and France were in charge but neither were strong enough to do the job properly	The League relied on the armies of member states, this made it difficult to act on threats.	Bulgaria was invaded by Greece in 1925 after border disputes. The league ordered Greece to withdraw, and it obeyed.
The league could introduce sanctions but only if powerful countries applied them.	The league was a large organisation but it was also complicated. Everyone had to agree in the assembly and council before anything happened. It made it difficult to get anything done.	The Ruhr (an industrial region of Germany) was invaded and occupied by France in 1923 after Germany had failed to keep up its reparation payments. The French began shipping its products back to France. The League of Nations didn't intervene. The USA helped resolve the situation with the Dawes plan.
Economic sanctions were frequently undermined by the USA's non membership and the unwillingness of Britain and France to enforce		

Year 10 History

Autumn Term- League of Nations in the 1930s

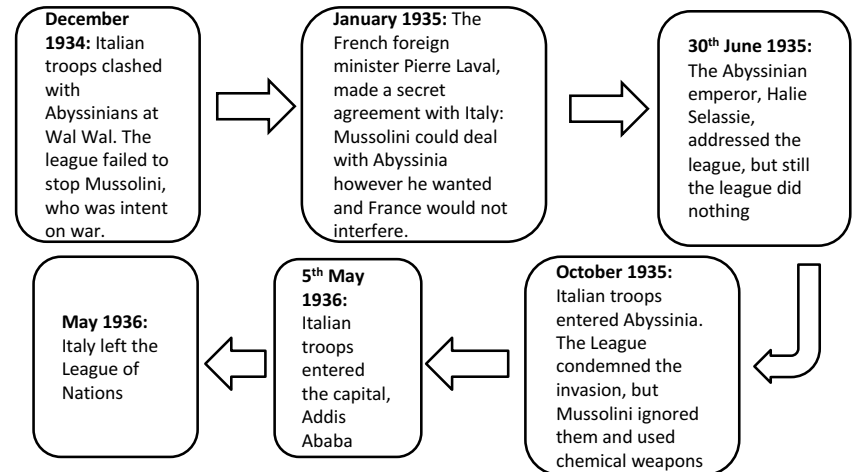
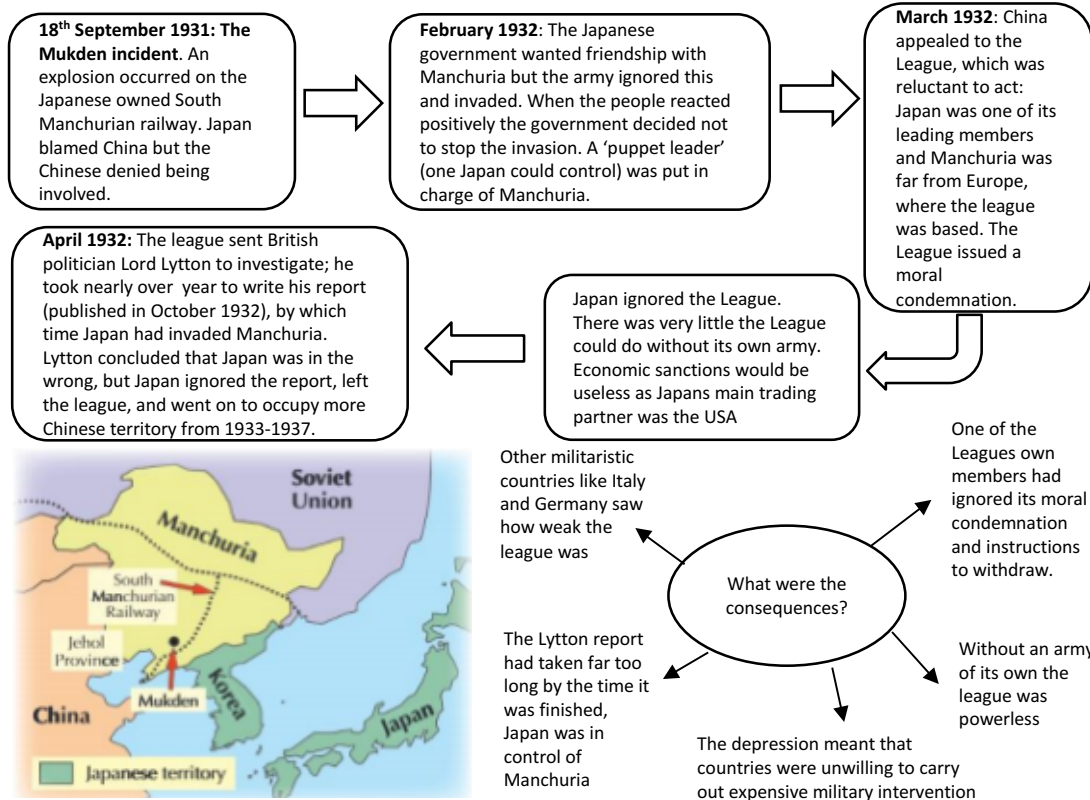
The League of Nations faced one of its biggest tests so far in September 1931. The Japanese army staged the Mukden incident and used it as an excuse to invade the region of Manchuria in China. The league was also challenged by Italy and Mussolini. In 1935 he invaded Abyssinia in North – East Africa. Both countries were permanent members of the League and had gone against the covenant.

Causes of the Manchurian crisis:

- 1929 Wall street crash started the Great depression. Japan suffered greatly its main export was silk, a luxury many could not afford.
- Japan became more militaristic- the government looked for land to invade, thinking it could give them more natural resources. Manchuria was rich in natural resources.
- Japan already had industry and a railway there so it looked like an ideal place to invade.

Causes of the Abyssinia crisis:

- Mussolini wanted to rebuild the Roman Empire, by invading other countries
- There was natural resources in Abyssinia, which would be useful for Italy during the Depression.
- In 1896, Italy had tried to invade Abyssinia and had been humiliated when the country defeated them, Mussolini wanted revenge.
- In 1935, Britain and France signed an agreement with Italy to form the Stresa Front. Mussolini did not think Britain and France would endanger the new agreement by trying to stop him in Abyssinia.



The Hoare- Laval pact was a secret agreement by the British and French foreign ministers. They wanted to give Mussolini land in Abyssinia. The pact was leaked by the press and there was a public outcry. It looked like Britain and France cared more about their own interests.

Small countries knew that the League could and would do nothing to protect them. From this time onwards, almost no one regarded the League as a serious or powerful organisation.

What were the consequences?



Paper 1: Living with the Physical Environment

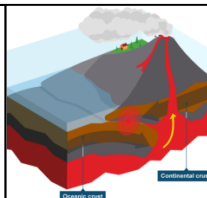
Section A: Natural and Tectonic Hazards

What is the definition of a Natural Hazard?

A natural hazard is a natural event such as an earthquake, volcanic eruption, tropical storm or flood that poses risk of death, injury or damage to people and property.

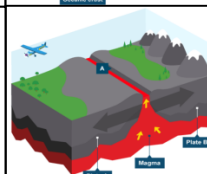
What are the processes at Destructive Plate Margins?

This is where two plates are moving towards each other. The oceanic dense plate subducts beneath the less dense continental plate. Friction between the plates causes earthquakes. As the oceanic plate moves downwards it melts. The magma here is very viscous (like jam) and forces its way to the surface to form steep sided composite volcanoes such as those found on the west coast of South America where the Nazca plate subducts beneath the South American plate. Eruptions are often very violent and explosive. COLLISION IS 2 CONTINENTAL PLATES COMING TOGETHER.



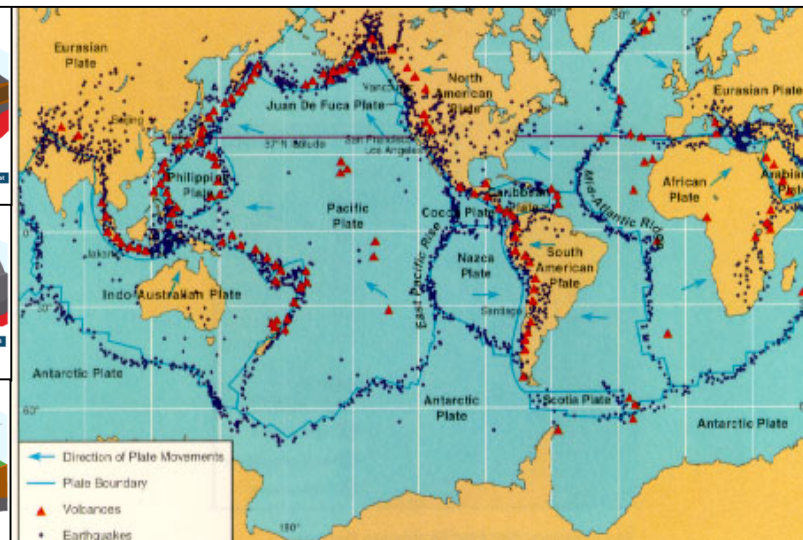
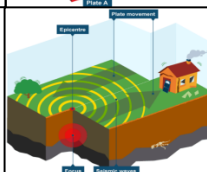
What are the processes at Constructive Plate Margins?

This is where two plates are moving apart like what is happening at the Mid-Atlantic Ridge where magma forces its way to the surface along the Mid-Atlantic Ridge. As it breaks through the overlying crust it causes earthquakes. On reaching the surface it forms volcanoes such as Eyjafjallajökull in Iceland. The magma here is very hot and fluid, it will flow a long way before cooling, resulting in typically broad and flat shield volcanoes.



What are the processes at Conservative Plate Margins?

This is where two plates are sliding alongside each other such as the San Andreas Fault in California. The faster-moving Pacific Plate is sliding in the same direction next to the slower North-America Plate. Friction between the two plates then causes earthquakes as stresses gradually build up over many years, they are released suddenly when pressure builds up and plates slip or shift. There are no volcanoes here.



How can we manage and reduce the effects of a Tectonic Hazard?

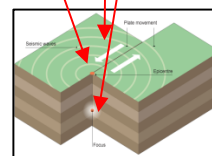
Monitoring and Prediction

Protection

Planning

- Seismometers are used to measure tremors before a main earthquake.
- Monitoring the water table (water tends to fluctuate before an earthquake).
- Satellites monitor ground deformation.
- Designing buildings and roads to withstand earthquakes.
- Increasing awareness.
- Earthquake drills.
- Seismic maps can be made.
- Prepare emergency supplies.

The point directly above the focus where the seismic waves reach first, is called the epicentre. Seismic waves travel out from the focus, which is the point at which pressure is released.



What are the reasons why people continue to live in areas at risk from a Tectonic Hazard?

People living in poverty ridden areas have more important things to think about like food, money, security and family. Plate margins often coincide with very favourable areas for settlement, such as coastal areas where ports have developed. Fault lines associated with earthquakes allow water supplies to reach the surface. This is important in dry desert regions. Better building design can withstand earthquakes so people feel less at risk. Volcanoes can bring benefits such as fertile soils, rocks for building, rich mineral deposits, hot water and geothermal energy. More effective monitoring of volcanoes and tsunamis waves enable people to receive warnings and evacuate before events happen.

Paper 1: Living with the Physical Environment

Section A: Weather Hazards

How can Tropical Storms be Managed?

Monitoring Protection

Satellites monitor cloud patterns associated with tropical storms.
NASA monitor weather patterns using unmanned drones called Global Hawk.
Reinforce buildings - hurricane shutters on windows and doors.
Develop coastal flood defences.
Create 'no-build zones' in low lying areas.

Prediction Planning

Supercomputers give 5 days' warning and predict a location within 400km.
Track forecast cones plot the tropical storms path. Approx. 70% occur within the cone.
Those living where it will hit can prepare disaster supply kits and ensure their car is fully fuelled.
People should know where evacuation centres are.



What is the global distribution of tropical storms?

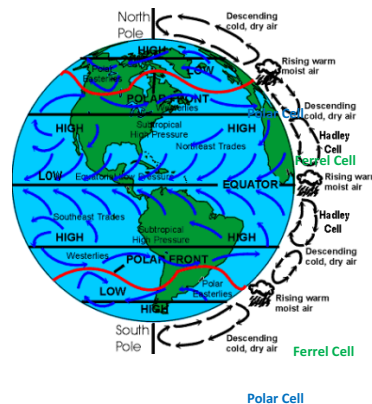
Tropical storms are a natural hazard. They have different names depending on their location. They occur between 5° and 30° north and south of the Equator, between the tropic of Cancer and the tropic of Capricorn. This provides areas of intense low-pressure so that warm, moist air rises rapidly to reach high altitudes where it begins to spin (Coriolis effect). They don't occur on the equator because there is not enough spin from the rotation of the Earth. In the USA and Caribbean tropical storms are called Hurricanes. In south-east Asia and Australia, they are called cyclones, but in Japan and the Philippines they are called typhoons.

What are the Causes and Formation of a Tropical Storm?

1. The sun's rays heat large areas of the ocean in the summer and the autumn. When ocean temperatures reach 27°C, warm, moist air rises upwards drawing water vapour up from the ocean surface. This is a low-pressure system.
2. This evaporated air cools as it rises and condenses to form towering thunderstorm (cumulonimbus) clouds.
3. As the air condenses it releases heat which powers the storm and draws up more and more water from the ocean.
4. Several smaller thunderstorms join, to form a giant spinning storm. When surface winds reach an average 120km per hour (75mph) the storm officially becomes a tropical storm.
5. The storm now develops an eye at its centre where air descends (sinks) rapidly. The outer edge of the eye is the eyewall where the most intense weather conditions (strong winds and heavy rain) are felt.
6. As the storm is carried across the ocean by the prevailing winds, it continues to gather strength.
7. On reaching land the storm's energy supply (evaporated water) is cut off. Friction with the land slows it down and it begins to weaken as it approaches land. If the storm reaches warm seas after crossing the land, it may pick up strength again.

What is Global Atmospheric Circulation?

The atmosphere - the air above our heads - is a complex swirling mass of gases, liquids and solids. These include water droplets, water vapour, ash, carbon dioxide and oxygen - just to mention a few. Atmospheric circulation is the large-scale movement of air by which heat is distributed on the surface of the Earth. It involves many circular movements called *cells*. These cells all join to form the overall circulation of the earth's atmosphere.



Air at the equator is heated strongly so it rises in **low pressure** conditions. The air flows towards the North and South Poles. As warm air rises it cools and condenses. **Low pressure** therefore brings clouds and rain.

The air sinks at 30° north and south of the Equator under **high pressure**. **High pressure** weather brings dry and clear skies. This forms a convection (circular movements) cell called the Hadley cell.

Air at the polar latitudes is colder and denser (heavier) so the air sinks towards the ground surface under **high pressure** conditions. This air flows towards the Equator. The air warms as it reaches about 60° and again rises under **low pressure** conditions. This forms the **Polar Cell**. Located between the Hadley cell and the Polar cell is the **Ferrel Cell**.

Is the UK Weather becoming more Extreme?

Extreme Weather is not new to the UK. However, the frequency of extreme weather in the UK is increasing. Since the 1980s, UKs temperatures have increased by about 1°C and winter rainfall has increased. There have been more weather records broken in recent years than ever before.

Extreme Weather Records Temperature

Rainfall
December 2010 coldest on record for 100 years.

Warmest April was 2011.

Highest temperature was 38.5°C in Kent in August 2003.

Lowest temperature was -27°C in Scotland in 1995.

Highest two-day record of rainfall (405mm) was in 2015.

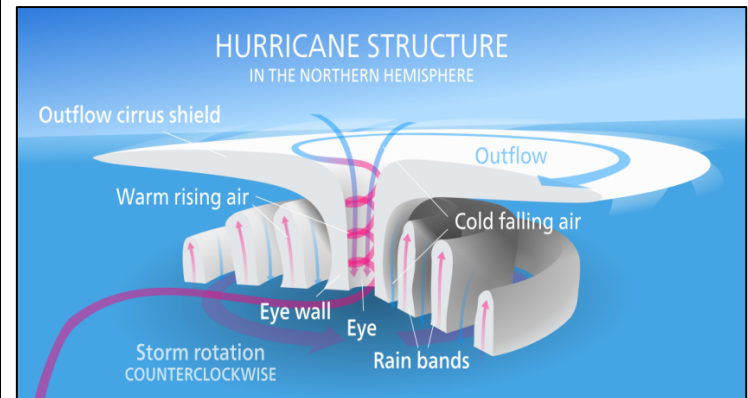
Highest three - four-day rainfall records were both in 2009.

Highest monthly total rainfall was 1296mm in 2015.

Serious flooding has become more frequent in winters.



What is the structure and the features of a tropical storm?



What are future predictions for UK Weather?

Precipitation is expected to become more frequent.
Some rivers are expected to flood more frequently in winters.
Air temperature is expected to increase, causing more drought.

Climate change cannot be responsible for individual extreme weather events, yet scientists say it can be responsible for increased frequency in such events.

Paper 1: Living with the Physical Environment

Section A: Climate Change

What are the possible Causes of Climate Change?

Climate change is the **long-term** change in weather. Global climate change occurs very slowly over thousands of years. Evidence of climate change occurring before humans existed means climate change must be natural as well as human enhanced. Natural causes alone cannot account for the significant temperature increase since the 1970s. A thicker layer of greenhouse gases (carbon dioxide 77%, methane 14%, nitrous oxide 8% and CFCs 1%) caused by human activity means less of the Sun's energy is able to escape the Earth's atmosphere, so the temperature increases.

What is the evidence for Climate Change?

Since 1914 the Met Office has reliable climate change data collected using weather stations, satellites, weather balloons, radar and ocean buoys. Evidence includes:

- An increase in the average surface air temperature by 1°C over the past 100 years.
- The warmest ocean temperatures since 1850.
- A 19cm rise in sea levels since 1900.
- Arctic sea ice has thinned by 65% since 1975.



Natural records like tree rings, ice cores (spanning 800, 000 years) and ocean sediments (spanning beyond the quaternary period), help estimate climate. The period of timeline that spans from **2.6 million years ago to the present day** is called the **Quaternary Period**. This period marks a time when there was a **global drop in temperature** and the most recent ice age began.

Ice cores are cylinders of ice drilled out of an ice sheet or glacier. The ice encloses small bubbles of air that contain a sample of the atmosphere - making it possible to measure the past concentration of gases in the atmosphere. Antarctic ice cores show us that the concentration of CO₂ was stable until the early 19th century.

How will Climate Change affect People and the Environment?

- Less ice in the Arctic Ocean increases shipping and extraction of gas and oil reserves (because we can reach it).
- Droughts reduce food and water supplies in sub-Saharan Africa.
- Water scarcity in the south and south east of the UK.
- 70% of Asia at increased risk of flooding.
- Sea level rise increases flooding and coastal erosion.
- Ice melts so wildlife declines such as Adelie penguins on the Arctic peninsula and polar bears in the Arctic.

How can we Manage Climate Change?

The burning of fossil fuels to produce electricity, fuels vehicles and power industry contributes 87% of all human-produced CO₂ emissions. The rest comes from land uses changes such as deforestation (9%) and industrial processes such as making cement (4%).

Alternative Energy Provision: To help reduce carbon emissions many countries are turning to alternative sources of energy such as: hydro-electricity, nuclear power, solar, wind and tidal. These do not emit large amounts of CO₂. Some are also renewable and will last into the future. Nuclear power uses uranium to generate electricity but it does not emit CO₂ as a by-product. At current, in 2016, renewables produce more than 20% of the UK's electricity.

Carbon Capture and Storage: Coal is the most polluting of all fossil fuels. China gets 80% of its electricity from burning coal, India 70% and the USA 50%. Carbon capture and storage (CCS) uses technology to capture CO₂ produced from the use of fossil fuels in electricity generation and industrial processes. It is possible to capture up to 90% of the CO₂ that would otherwise enter the atmosphere. Once CO₂ is captured, the carbon gas is compressed and transported by pipeline to an injection well. It is injected as a liquid into the ground to be stored in suitable geological reservoirs such as sedimentary rock as this prevents it from escaping. The UK is the world leader in CCS.

Planting Trees: Trees act as carbon sinks, removing CO₂ from the atmosphere by the process of photosynthesis. They also release moisture into the atmosphere. This has a cooling effect by producing more cloud, reducing incoming solar radiation. Tree planting is well established in many parts of the world. Plantation forests can absorb CO₂ at a faster rate than natural forests and can do so effectively for up to 50 years. The UK has a £24.9 million project to reduce deforestation and increase reforestation in Brazil. It aims to tackle climate change by reducing 10.71 million tons of CO₂ emissions over 20 years by recovering 41,560 hectares of degraded forests.

International Agreement: Paris Agreement 2015 -

- 195 adopted the first ever universal and legally binding global climate deal.
- To peak greenhouse gas emissions as soon as possible and achieve a balance between sources and sinks of greenhouse gases in the second half of this century (2050-2100).
- To keep global temperature increase below 2°C and limited to 1.5°C above pre-industrial levels.
- To review progress every 5 years.
- \$100 billion a year to support climate change initiatives in developing countries by 2020, with further finance in the future.
- There have been criticisms that many of these agreements are 'promises' or aims and not firm commitments.

Conservative Plate Margin	Tectonic plate margin where two tectonic plates slide past each other.	<i>Earthquakes are caused by conservative plate margins.</i>
Constructive Plate Margin	Tectonic plate margin where two tectonic plates slide past each other.	<i>Shield volcanoes are formed by constructive plate margins.</i>
Destructive Plate Margin	Tectonic plate margin where two tectonic plates slide past each other.	<i>Volcanoes and earthquakes are found on destructive plate margins.</i>
Immediate Response	The reaction of people as the disaster happens and in the immediate aftermath.	<i>An immediate response to the hazard was evacuation.</i>
Long-term Response	Later reactions that occur in the weeks, months and years after the event.	<i>A long term response to the hazard was improving infrastructure.</i>
Monitoring	Recording physical changes, such as earthquake tremors around a volcano, to help forecast when and where a natural hazard might strike.	<i>Seismologists are able to predict future earthquakes by monitoring seismic activity.</i>
Prediction	Attempts to forecast when and where a natural hazard will strike, based on current knowledge. This can be done to some extent for volcanic eruptions (and tropical storms), but less reliably for earthquakes.	<i>Seismologists are able to predict future earthquakes by monitoring seismic activity.</i>
Planning	Actions taken to enable communities to respond to, and recover from, natural disasters, through measures such as emergency evacuation plans, information management, communications and warning systems.	<i>We can reduce the impacts of tectonic hazards by planning ahead.</i>
Protection	Actions taken before a hazard strikes to reduce its impact, such as educating people or improving building design.	<i>Strengthening buildings and infrastructure adds protection to communities in the event of an earthquake, and can reduce the effects.</i>
Primary Effects	The initial impact of a natural event on people and property, caused directly by it, for instance the ground buildings collapsing following an earthquake.	<i>A primary effect of an earthquake is the collapse of buildings.</i>
Secondary Effects	The after-effects that occur as indirect impacts of a natural event, sometimes on a longer timescale, for instance fires due to ruptured gas mains resulting from the ground shaking.	<i>A secondary effect of an earthquake is homelessness, because your home collapsed, or unemployed because your place of work collapsed.</i>
Climate Change	A long-term change in the earth's climate, especially a change due to an increase in the average atmospheric temperature.	<i>The burning of fossil fuels is one of the most significant causes of climate change.</i>
Mitigation	Action taken to reduce or eliminate the long-term risk to human life from natural hazards, such as building earthquake-proof buildings or making international agreements about carbon reduction targets.	<i>Mitigation strategies include the use of alternative energies, and adopting a plant based diet.</i>
Adaptation	Actions taken to adjust to natural events such as climate change, to reduce potential damage, limit the impacts, take advantage of opportunities, or cope with the consequences.	<i>Adaptation strategies include the building of flood defences and water transfer schemes.</i>
Orbital Changes	Changes in the pathway of the Earth around the Sun.	<i>Orbital changes modify the total amount of sunlight reaching the Earth by up to 25%.</i>

Theme 1

Vocabulary

Theme

Words that are highlighted in grey in this list are words that may be useful, but you won't need to know them for the exam.

Introductory vocabulary

<i>l'acteur/actrice</i> actor, actress	<i>le chômage</i> unemployment
<i>actif/active</i> active	<i>cinq</i> five
<i>adorer</i> to love	<i>le collège</i> (secondary) school
<i>l'allemand (n.) (m.)</i> German (language)	<i>comme</i> such as, like, since
<i>aller</i> to go	<i>le concert</i> concert
<i>l'ami(e) (m./f.)</i> friend	<i>la construction</i> construction
<i>amusant(e)</i> amusing, fun, funny, enjoyable	<i>content(e)</i> glad, pleased, happy
<i>l'anglais (n.) (m.)</i> English (language)	<i>le cours</i> lesson
<i>anglais(e) (adj.)</i> English	<i>court(e)</i> short
<i>s'appeler</i> to be called	<i>le/la cousin(e)</i> cousin
<i>apporter</i> to bring	<i>dernier/dernière</i> last
<i>après</i> after	<i>détester</i> to hate
<i>l'après-midi (m.)</i> afternoon	<i>deux</i> two
<i>assez</i> quite, enough	<i>devenir</i> to become
<i>au chômage</i> unemployed	<i>difficile</i> difficult
<i>autre chose</i> anything else	<i>dix</i> ten
<i>avoir</i> to have	<i>du/de la/des/de l'</i> some
<i>beaucoup (de)</i> a lot (of)	<i>eau (f.)</i> water
<i>le beau-père</i> stepfather, father-in-law	<i>l'école (f.)</i> school
<i>la belle-mère</i> stepmother, mother-in-law	<i>écrire</i> to write
<i>la bibliothèque</i> library	<i>l'éducation (f.)</i> education
<i>bien</i> good, well	<i>en général</i> in general
<i>blanc (adj.)</i> white	<i>en plus</i> in addition
<i>boire</i> to drink	<i>en premier</i> first of all, firstly
<i>bon(ne)</i> good	<i>l'enfant (m./f.)</i> child
<i>bonjour</i> good morning, afternoon	<i>enfin</i> finally
<i>brun(e)</i> brown	<i>ennuyé(e)</i> bored
<i>ça</i> it, that	<i>ensemble</i> together
<i>le café</i> coffee, coffee shop	<i>ensuite</i> then
<i>car</i> because	<i>équilibré(e)</i> balanced
<i>célèbre</i> famous	<i>l'équipe (f.)</i> team
<i>cependant</i> however	<i>l'espagnol (n.) (m.)</i> Spanish (language)
<i>la chanson</i> song	<i>espagnol(e) (adj.)</i> Spanish
<i>le/la chanteur/chanteuse</i> singer	<i>être</i> to be
<i>les cheveux (m. pl.)</i> hair	<i>facile</i> easy

<i>le français (n.)</i> French (language)	<i>le métier</i> job
<i>français(e) (adj.)</i> French	<i>la mode</i> fashion
<i>la France</i> France	<i>moi</i> me
<i>les frites (f. pl.)</i> chips	<i>la musique</i> music
<i>le fromage</i> cheese	<i>la natation</i> swimming
<i>le fruit</i> fruit	<i>non-binaire</i> non-binary
<i>gagner</i> to win, earn	<i>null(e)</i> rubbish
<i>le gâteau</i> cake	<i>l'oncle (m.)</i> uncle
<i>gauche</i> left	<i>l'ordinateur (m.)</i> computer
<i>généralement</i> generally	<i>où</i> where
<i>génial(e)</i> great	<i>le pain</i> bread
<i>la géographie</i> geography	<i>par contre</i> on the other hand
<i>la glace</i> ice, ice cream	<i>parce que</i> because
<i>le gouvernement</i> government	<i>parfois</i> sometimes
<i>la grand-mère</i> grandmother	<i>passer</i> to spend, to pass
<i>le grand-père</i> grandfather	<i>le père</i> father
<i>la grève</i> strike	<i>la personne</i> person
<i>habiter</i> to live	<i>le petit-déjeuner</i> breakfast
<i>l'heure (f.)</i> hour, time, o'clock	<i>la photo</i> photo
<i>l'histoire (f.)</i> history, story	<i>la piscine</i> swimming pool
<i>important(e)</i> important	<i>plusieurs</i> several
<i>l'indépendance (f.)</i> independence	<i>le poisson</i> fish
<i>l'informatique (f.)</i> IT, computer science	<i>le/la policier/policière</i> policeman/policewoman
<i>intéressant(e)</i> interesting	<i>la politique</i> politics
<i>jamais</i> never	<i>porter</i> to wear, to carry
<i>je voudrais (vouloir)</i> I would like	<i>pouvoir</i> to be able to
<i>jeune</i> young	<i>préféré(e)</i> favourite
<i>jouer</i> to play	<i>le professeur/professeure, prof</i> teacher
<i>juillet</i> July	<i>puis</i> then
<i>le lait</i> milk	<i>la récréation</i> breaktime
<i>le/la l'/les</i> the	<i>rentrer</i> to go back, to go home
<i>le légume</i> vegetable	<i>le restaurant</i> restaurant
<i>la lettre</i> letter	<i>le rêve</i> dream
<i>leur(s) (to) them, their</i>	<i>le riz</i> rice
<i>long(ue)</i> long	<i>la rue</i> street
<i>la maison</i> house	<i>sain(e)</i> healthy
<i>manger</i> to eat	<i>le salaire</i> salary
<i>(le) mardi</i> Tuesday	<i>(le) samedi</i> Saturday
<i>le mari</i> husband	<i>les sciences (f. pl.)</i> sciences
<i>les maths (f. pl.)</i> maths	<i>la sécurité</i> safety, security
<i>le matin</i> morning	<i>la semaine</i> week
<i>méchant(e)</i> naughty, nasty	<i>le serveur/serveuse</i> waiter/waitress
<i>la mère</i> mother	<i>la sœur</i> sister
	<i>sourire</i> to smile

<i>le français (n.)</i> French (language)	<i>le français (n.)</i> French (language)
<i>français(e) (adj.)</i> French	<i>français(e) (adj.)</i> French
<i>la France</i> France	<i>la France</i> France
<i>les frites (f. pl.)</i> chips	<i>les frites (f. pl.)</i> chips
<i>le fromage</i> cheese	<i>le fromage</i> cheese
<i>le fruit</i> fruit	<i>le fruit</i> fruit
<i>gagner</i> to win, earn	<i>gagner</i> to win, earn
<i>le gâteau</i> cake	<i>le gâteau</i> cake
<i>gauche</i> left	<i>gauche</i> left
<i>généralement</i> generally	<i>généralement</i> generally
<i>génial(e)</i> great	<i>génial(e)</i> great
<i>la géographie</i> geography	<i>la géographie</i> geography
<i>la glace</i> ice, ice cream	<i>la glace</i> ice, ice cream
<i>le gouvernement</i> government	<i>le gouvernement</i> government
<i>la grand-mère</i> grandmother	<i>la grand-mère</i> grandmother
<i>le grand-père</i> grandfather	<i>le grand-père</i> grandfather
<i>la grève</i> strike	<i>la grève</i> strike
<i>habiter</i> to live	<i>habiter</i> to live
<i>l'heure (f.)</i> hour, time, o'clock	<i>l'heure (f.)</i> hour, time, o'clock
<i>l'histoire (f.)</i> history, story	<i>l'histoire (f.)</i> history, story
<i>important(e)</i> important	<i>important(e)</i> important
<i>l'indépendance (f.)</i> independence	<i>l'indépendance (f.)</i> independence
<i>l'informatique (f.)</i> IT, computer science	<i>l'informatique (f.)</i> IT, computer science
<i>intéressant(e)</i> interesting	<i>intéressant(e)</i> interesting
<i>jamais</i> never	<i>jamais</i> never
<i>je voudrais (vouloir)</i> I would like	<i>je voudrais (vouloir)</i> I would like
<i>jeune</i> young	<i>jeune</i> young
<i>jouer</i> to play	<i>jouer</i> to play
<i>juillet</i> July	<i>juillet</i> July
<i>le lait</i> milk	<i>le lait</i> milk
<i>le/la l'/les</i> the	<i>le/la l'/les</i> the
<i>le légume</i> vegetable	<i>le légume</i> vegetable
<i>la lettre</i> letter	<i>la lettre</i> letter
<i>leur(s) (to) them, their</i>	<i>leur(s) (to) them, their</i>
<i>long(ue)</i> long	<i>long(ue)</i> long
<i>la maison</i> house	<i>la maison</i> house
<i>manger</i> to eat	<i>manger</i> to eat
<i>(le) mardi</i> Tuesday	<i>(le) mardi</i> Tuesday
<i>le mari</i> husband	<i>le mari</i> husband
<i>les maths (f. pl.)</i> maths	<i>les maths (f. pl.)</i> maths
<i>le matin</i> morning	<i>le matin</i> morning
<i>méchant(e)</i> naughty, nasty	<i>méchant(e)</i> naughty, nasty
<i>la mère</i> mother	<i>la mère</i> mother

<i>le français (n.)</i> French (language)	<i>le français (n.)</i> French (language)
<i>français(e) (adj.)</i> French	<i>français(e) (adj.)</i> French
<i>la France</i> France	<i>la France</i> France
<i>les frites (f. pl.)</i> chips	<i>les frites (f. pl.)</i> chips
<i>le fromage</i> cheese	<i>le fromage</i> cheese
<i>le fruit</i> fruit	<i>le fruit</i> fruit
<i>gagner</i> to win, earn	<i>gagner</i> to win, earn
<i>le gâteau</i> cake	<i>le gâteau</i> cake
<i>gauche</i> left	<i>gauche</i> left
<i>généralement</i> generally	<i>généralement</i> generally
<i>génial(e)</i> great	<i>génial(e)</i> great
<i>la géographie</i> geography	<i>la géographie</i> geography
<i>la glace</i> ice, ice cream	<i>la glace</i> ice, ice cream
<i>le gouvernement</i> government	<i>le gouvernement</i> government
<i>la grand-mère</i> grandmother	<i>la grand-mère</i> grandmother
<i>le grand-père</i> grandfather	<i>le grand-père</i> grandfather
<i>la grève</i> strike	<i>la grève</i> strike
<i>habiter</i> to live	<i>habiter</i> to live
<i>l'heure (f.)</i> hour, time, o'clock	<i>l'heure (f.)</i> hour, time, o'clock
<i>l'histoire (f.)</i> history, story	<i>l'histoire (f.)</i> history, story
<i>important(e)</i> important	<i>important(e)</i> important
<i>l'indépendance (f.)</i> independence	<i>l'indépendance (f.)</i> independence
<i>l'informatique (f.)</i> IT, computer science	<i>l'informatique (f.)</i> IT, computer science
<i>intéressant(e)</i> interesting	<i>intéressant(e)</i> interesting
<i>jamais</i> never	<i>jamais</i> never
<i>je voudrais (vouloir)</i> I would like	<i>je voudrais (vouloir)</i> I would like
<i>jeune</i> young	<i>jeune</i> young
<i>jouer</i> to play	<i>jouer</i> to play
<i>juillet</i> July	<i>juillet</i> July
<i>le lait</i> milk	<i>le lait</i> milk
<i>le/la l'/les</i> the	<i>le/la l'/les</i> the
<i>le légume</i> vegetable	<i>le légume</i> vegetable
<i>la lettre</i> letter	<i>la lettre</i> letter
<i>leur(s) (to) them, their</i>	<i>leur(s) (to) them, their</i>
<i>long(ue)</i> long	<i>long(ue)</i> long
<i>la maison</i> house	<i>la maison</i> house
<i>manger</i> to eat	<i>manger</i> to eat
<i>(le) mardi</i> Tuesday	<i>(le) mardi</i> Tuesday
<i>le mari</i> husband	<i>le mari</i> husband
<i>les maths (f. pl.)</i> maths	<i>les maths (f. pl.)</i> maths
<i>le matin</i> morning	<i>le matin</i> morning
<i>méchant(e)</i> naughty, nasty	<i>méchant(e)</i> naughty, nasty
<i>la mère</i> mother	<i>la mère</i> mother

<i>souvent</i> often	<i>souvent</i> often
<i>le sport</i> sport	<i>le sport</i> sport
<i>sportif/sportive</i> sporty	<i>sportif/sportive</i> sporty
<i>strict(e)</i> strict	<i>strict(e)</i> strict
<i>le studio</i> studio	<i>le studio</i> studio
<i>le succès</i> success	<i>le succès</i> success
<i>la Suisse</i> Switzerland	<i>la Suisse</i> Switzerland
<i>super</i> great, super	<i>super</i> great, super
<i>sûr(e)</i> safe, secure	<i>sûr(e)</i> safe, secure
<i>sympa</i> nice	<i>sympa</i> nice
<i>la technologie</i> DT	<i>la technologie</i> DT
<i>le temps</i> time, weather	<i>le temps</i> time, weather
<i>le thé</i> tea	<i>le thé</i> tea
<i>le théâtre</i> drama	<i>le théâtre</i> drama
<i>tous les jours</i> every day	<i>tous les jours</i> every day
<i>transgenre</i> transgender	<i>transgenre</i> transgender
<i>travailler</i> to work	<i>travailler</i> to work
<i>trop de</i> too much, many (of)	<i>trop de</i> too much, many (of)
<i>trouver</i> to find	<i>trouver</i> to find
<i>le t-shirt</i> t-shirt	<i>le t-shirt</i> t-shirt
<i>un peu</i> a little	<i>un peu</i> a little
<i>un(e)</i> a	<i>un(e)</i> a
<i>le vélo</i> bike	<i>le vélo</i> bike
<i>vers</i> towards	<i>vers</i> towards
<i>la viande</i> meat	<i>la viande</i> meat
<i>le Vietnam</i> Vietnam	<i>le Vietnam</i> Vietnam
<i>le village</i> village	<i>le village</i> village
<i>la ville</i> town, city	<i>la ville</i> town, city
<i>le vin</i> wine	<i>le vin</i> wine
<i>voici</i> here is	<i>voici</i> here is
<i>vouloir</i> to want	<i>vouloir</i> to want
<i>voyager</i> to travel	<i>voyager</i> to travel
<i>vraiment</i> really	<i>vraiment</i> really

1.1G Qui suis-je?

<i>aimer</i> to like	<i>aimer</i> to like
<i>l'an (m.)</i> year	<i>l'an (m.)</i> year
<i>avec</i> with	<i>avec</i> with
<i>beau/belle</i> beautiful, handsome	<i>beau/belle</i> beautiful, handsome
<i>la Belgique</i> Belgium	<i>la Belgique</i> Belgium
<i>bleu(e)</i> blue	<i>bleu(e)</i> blue
<i>le chien</i> dog	<i>le chien</i> dog
<i>comment</i> how	<i>comment</i> how
<i>la couleur</i> colour	<i>la couleur</i> colour
<i>la cuisine</i> kitchen, cooking	<i>la cuisine</i> kitchen, cooking
<i>dans</i> in	<i>dans</i> in

<i>doize</i> twelve	<i>doize</i> twelve
<i>elle</i> she	<i>elle</i> she
<i>facilement</i> easily	<i>facilement</i> easily
<i>le fast-food</i> fast food	<i>le fast-food</i> fast food
<i>le frère</i> brother	<i>le frère</i> brother
<i>gentil(le)</i> kind	<i>gentil(le)</i> kind
<i>grand(e)</i> big, large, tall	<i>grand(e)</i> big, large, tall
<i>les grand-parents (m. pl.)</i> grandparents	<i>les grand-parents (m. pl.)</i> grandparents
<i>il</i> he	<i>il</i> he
<i>je/j'</i> I	<i>je/j'</i> I
<i>joli(e)</i> pretty	<i>joli(e)</i> pretty
<i>mais</i> but	<i>mais</i> but
<i>le Maroc</i> Morocco	<i>le Maroc</i> Morocco
<i>mauvais(e)</i> bad	<i>mauvais(e)</i> bad
<i>le million</i> million	<i>le million</i> million
<i>mon, ma, mes</i> my	<i>mon, ma, mes</i> my
<i>la montagne</i> mountain	<i>la montagne</i> mountain
<i>nous</i> we	<i>nous</i> we
<i>noir(e)</i> black	<i>noir(e)</i> black
<i>nouveau/nouvelle</i> new	<i>nouveau/nouvelle</i> new
<i>on</i> we, one	<i>on</i> we, one
<i>le pantalon</i> trousers	<i>le pantalon</i> trousers
<i>parler</i> to speak, to talk	<i>parler</i> to speak, to talk
<i>petit(e)</i> small, little, short	<i>petit(e)</i> small, little, short
<i>préférer</i> to prefer	<i>préférer</i> to prefer
<i>le Québec</i> Quebec	<i>le Québec</i> Quebec
<i>qui</i> who, which	<i>qui</i> who, which
<i>regarder</i> to look, to watch	<i>regarder</i> to look, to watch
<i>rouge</i> red	<i>rouge</i> red
<i>le Sénégal</i> Senegal	<i>le Sénégal</i> Senegal
<i>sénégalais(e) (adj.)</i> Senegalese	<i>sénégalais(e) (adj.)</i> Senegalese
<i>surtout</i> especially	<i>surtout</i> especially
<i>la table</i> table	<i>la table</i> table
<i>la télé</i> TV	<i>la télé</i> TV
<i>très</i> very	<i>très</i> very
<i>tu</i> you (singular)	<i>tu</i> you (singular)
<i>vert(e)</i> green	<i>vert(e)</i> green
<i>les vêtements (m. pl.)</i> clothes	<i>les vêtements (m. pl.)</i> clothes
<i>vieux/vieille</i> old	<i>vieux/vieille</i> old
<i>les yeux (m. pl.)</i> eyes	<i>les yeux (m. pl.)</i> eyes

1.1F Ma personnalité

<i>acheter</i> to buy	<i>acheter</i> to buy
<i>alors</i> so, well, then	<i>alors</i> so, well, then
<i>arriver</i> to arrive	<i>arriver</i> to arrive
<i>attendre</i> to wait	<i>attendre</i> to wait
<i>au revoir</i> goodbye	<i>au revoir</i> goodbye

<i>aussi</i> also	<i>aussi</i> also
<i>bavard(e)</i> chatty	<i>bavard(e)</i> chatty
<i>bonne chance</i> good luck	<i>bonne chance</i> good luck
<i>calme (adj.)</i> calm, quiet	<i>calme (adj.)</i> calm, quiet
<i>la catastrophe</i> catastrophe	<i>la catastrophe</i> catastrophe
<i>la clé</i> key	<i>la clé</i> key
<i>connaître</i> to know (person, place)	<i>connaître</i> to know (person, place)
<i>le copain</i> friend, boyfriend	<i>le copain</i> friend, boyfriend
<i>la copine</i> friend, girlfriend	<i>la copine</i> friend, girlfriend
<i>de plus</i> besides, moreover	<i>de plus</i> besides, moreover
<i>descendre</i> to go down, descend, get off	<i>descendre</i> to go down, descend, get off
<i>devoir</i> to have to, must	<i>devoir</i> to have to, must
<i>drôle</i> funny	<i>drôle</i> funny
<i>embêtant(e)</i> annoying	<i>embêtant(e)</i> annoying
<i>en fait</i> in fact, in reality	<i>en fait</i> in fact, in reality
<i>en retard</i> late	<i>en retard</i> late
<i>entendre</i> to hear	<i>entendre</i> to hear
<i>fier/fière</i> proud	<i>fier/fière</i> proud
<i>fort(e)</i> strong	<i>fort(e)</i> strong
<i>gentil(le)</i> kind	<i>gentil(le)</i> kind
<i>inquiétant(e)</i> worrying	<i>inquiétant(e)</i> worrying
<i>intelligent(e)</i> intelligent	<i>intelligent(e)</i> intelligent
<i>Internet (m.)</i> internet	<i>Internet (m.)</i> internet
<i>le judo</i> judo	<i>le judo</i> judo
<i>maintenant</i> now	<i>maintenant</i> now
<i>même</i> same	<i>même</i> same
<i>la mission</i> mission	<i>la mission</i> mission
<i>neuf/neuve</i> new	<i>neuf/neuve</i> new
<i>non</i> no	<i>non</i> no
<i>la note</i> grade, mark	<i>la note</i> grade, mark
<i>oui</i> yes	<i>oui</i> yes
<i> paresseux/paresseuse</i> lazy	<i> paresseux/paresseuse</i> lazy
<i>partir</i> to leave	<i>partir</i> to leave
<i>passionnant(e)</i> exciting	<i>passionnant(e)</i> exciting
<i>penser</i> to think	<i>penser</i> to think
<i>perdre</i> to lose	<i>perdre</i> to lose
<i>la personnalité</i> personality	<i>la personnalité</i> personality
<i>personne</i> nobody	<i>personne</i> nobody
<i>la qualité</i> quality	<i>la qualité</i> quality
<i>quand</i> when	<i>quand</i> when
<i>quel</i> that	<i>quel</i> that
<i>quel(le)</i> what, which	<i>quel(le)</i> what, which
<i>répondre</i> to answer	<i>répondre</i> to answer
<i>salut</i> hi, hello	<i>salut</i> hi, hello
<i>sérieux/sérieuse</i> serious	<i>sérieux/sérieuse</i> serious
<i>son/sa/ses</i> his/her	<i>son/sa/ses</i> his/her
<i>le téléphone</i> phone	<i>le téléphone</i> phone

<i>timide</i> timid, shy	<i>timide</i> timid, shy
<i>toi</i> you (singular)	<i>toi</i> you (singular)
<i>ton/ta/tes</i> your (singular)	<i>ton/ta/tes</i> your (singular)
<i>le train</i> train	<i>le train</i> train
<i>travailleur/travailleuse</i> hard-working	<i>travailleur/travailleuse</i> hard-working
<i>triste</i> sad	<i>triste</i> sad
<i>trop</i> too	<i>trop</i> too
<i>vendre</i> to sell	<i>vendre</i> to sell
<i>vite</i> quick	<i>vite</i> quick
<i>la voiture</i> car	<i>la voiture</i> car
<i>vrai(e)</i> true	<i>vrai(e)</i> true

1.2G Voici ma famille

<i>l'année (f.)</i> year	<i>l'année (f.)</i> year
<i>ce/cet/cette/ces</i> this, these	<i>ce/cet/cette/ces</i> this, these
<i>se disputer</i> to argue	<i>se disputer</i> to argue
<i>s'entendre avec</i> to get on with	<i>s'entendre avec</i> to get on with
<i>s'excuser</i> to apologise	<i>s'excuser</i> to apologise
<i>handicapé(e) (adj.)</i> disabled	<i>handicapé(e) (adj.)</i> disabled
<i>se marier</i> to get married	<i>se marier</i> to get married
<i>ou</i> or	<i>ou</i> or
<i>le petit copain</i> boyfriend	<i>le petit copain</i> boyfriend
<i>la petite copine</i> girlfriend	<i>la petite copine</i> girlfriend
<i>se séparer</i> to split up, separate	<i>se séparer</i> to split up, separate
<i>la tante</i> aunt	<i>la tante</i> aunt
<i>terrible</i> terrible	<i>terrible</i> terrible
<i>tout le temps</i> all the time	<i>tout le temps</i> all the time

1.2F Les familles de nos jours

Grammaire



The position of adjectives

In French, most adjectives **follow** the noun they describe.

J'ai les cheveux courts et les yeux verts.

I have **short** hair and **green** eyes.

However, some adjectives usually come **in front of** the noun. For example:

<i>grand(e)</i>	big, tall, large
<i>petit(e)</i>	small, short, little
<i>bon, bonne</i>	good
<i>mauvais(e)</i>	bad
<i>jeune</i>	young
<i>joli(e)</i>	pretty
<i>beau, bel*, belle</i>	beautiful
<i>nouveau, nouvel*, nouvelle</i>	new
<i>vieux, vieil*, vieille</i>	old

* in front of a vowel

J'aime mon nouveau pantalon. I like my new trousers.

J'habite dans un petit village. I live in a small town.

Grammaire



Comparative adjectives

Use comparative adjectives to make comparisons:

<i>plus ... que</i>	more ... than / ...er than
<i>moins ... que</i>	less ... than
<i>aussi ... que</i>	as ... as

Angelin est plus amusant que Nicole.

Angelin is **funnier than** Nicole.

Je suis moins gentil que ma sœur.

I am **less kind than** my sister.

Elle est aussi sympa que moi. She is **as nice as** me.

Remember to make the adjective agree with the subject of the sentence.

Bon and *mauvais* have irregular comparatives, *meilleur(e)* and *pire*:

La musique est meilleure que la lecture.

Music is better than reading.

La télévision est pire que la lecture.

Television is worse than reading.

Grammaire



Adjective agreement

In French, adjectives must agree in gender and number (singular or plural) with the noun. For most adjectives, you add -e if the noun is feminine singular, -s if the noun is masculine plural, and -es if the noun is feminine plural.

Some adjectives follow different patterns:

Masculine		Feminine	
-e	<i>timide</i>	-e	<i>timide</i> (no change)
-x	<i>sérieux</i>	-se	<i>sérieuse</i>
-f	<i>neuf</i>	-ve	<i>neuve</i>
-er	<i>fier</i>	-ère	<i>fière</i>

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<i>encourager</i>	to encourage
<i>énormément</i>	hugely
<i>ensuite</i>	then
<i>l'entretien (m.)</i>	interview
<i>le fils</i>	son
<i>immédiatement</i>	immediately
<i>influencer</i>	to influence
<i>maintenant</i>	now
<i>le membre</i>	member
<i>musical(e)</i>	musical
<i>la nature</i>	nature
<i>se passer</i>	to happen, go (well/badly)
<i>la photographie</i>	photography
<i>presque</i>	almost
<i>le progrès</i>	progress
<i>quelques</i>	some, a few
<i>le style</i>	style
<i>la télé-réalité</i>	reality TV
<i>la vue</i>	view

6.1F Vous voulez être célèbre?

<i>accessible</i>	accessible
<i>l'argent (m.)</i>	money
<i>le basket</i>	basketball
<i>calme (adj.)</i>	calm, quiet
<i>la célébrité</i>	celebrity
<i>classique (adj.)</i>	classical
<i>la compétence</i>	skill
<i>découvrir</i>	to discover
<i>développer</i>	to develop
<i>l'exemple (m.)</i>	example
<i>faire attention</i>	to be careful
<i>le/la footballeur/footballeuse</i>	footballer
<i>handicapé(e) (adj.)</i>	disabled
<i>l'influenceur/influenceuse (m./f.)</i>	influencer
<i>le/la joueur/joueuse</i>	player
<i>l'opinion (f.)</i>	opinion
<i>organiser</i>	to organise
<i>oublier</i>	to forget
<i>les paroles</i>	words, lyrics
<i>réussir</i>	to succeed
<i>sourire</i>	to smile
<i>le yoga</i>	yoga

6.2G Je sais réussir!

<i>actuel(le)</i>	current
<i>amuser</i>	to entertain
<i>l'athlète (m./f.)</i>	athlete
<i>le/la bénévole</i>	volunteer
<i>le/la champion(ne)</i>	champion
<i>communiquer</i>	to communicate
<i>la Côte d'Ivoire</i>	Ivory Coast
<i>danser</i>	to dance
<i>la détermination</i>	determination
<i>l'enfant (m./f.)</i>	child
<i>exprimer</i>	to express
<i>fier/fière</i>	proud
<i>l'humoriste (m./f.)</i>	humorist, comedian
<i>Idéal(e)</i>	ideal
<i>la médaille</i>	medal
<i>le/la musicien(ne)</i>	musician
<i>non seulement</i>	not only
<i>la politique</i>	politics
<i>le public</i>	audience
<i>raconter</i>	to tell
<i>le/la rappeur/rappeuse</i>	rapper
<i>rêver</i>	to dream
<i>le rôle</i>	role, part
<i>la Roumanie</i>	Romania
<i>savoir</i>	to know
<i>seulement</i>	only
<i>le/la sportif, sportive (n.)</i>	sportsman/sportswoman
<i>le symbole</i>	symbol
<i>travailleur/travailleuse</i>	hard-working

6.2F La vie de célébrité

<i>l'Amérique (f.)</i>	America
<i>l'avantage (m.)</i>	advantage
<i>complètement</i>	completely
<i>le couple</i>	couple
<i>devant</i>	in front of
<i>espagnol(e) (adj.)</i>	Spanish
<i>fantastique</i>	fantastic
<i>le hip-hop</i>	hip-hop
<i>l'influence (f.)</i>	influence
<i>malgré</i>	despite
<i>le mari</i>	husband

<i>la nuit</i>	night
<i>l'oncle (m.)</i>	uncle
<i>par</i>	by
<i> paresseux/paresseuse</i>	lazy
<i>personnel</i>	personal
<i>positif/positive</i>	positive
<i>prête(e)</i>	ready
<i>le problème</i>	problem
<i>propre</i>	clean, own
<i>protéger</i>	to protect
<i>quotidien(ne)</i>	daily
<i>répondre</i>	to answer
<i>riche</i>	rich
<i>le site web</i>	website

Culture

<i>l'athlétisme (m.)</i>	athletics
<i>avoir lieu</i>	to take place
<i>le but</i>	goal
<i>la compétition</i>	competition
<i>le continent</i>	continent
<i>la culture</i>	culture
<i>culturel(le)</i>	cultural
<i>le cyclisme</i>	cycling
<i>démocratique</i>	democratic
<i>la diversité</i>	diversity
<i>en plus</i>	in addition
<i>entre</i>	between
<i>excellent(e)</i>	excellent
<i>la langue</i>	language
<i>la lutte</i>	wrestling
<i>merci</i>	thank you
<i>le/la participant(e)</i>	participant
<i>présent(e)</i>	present
<i>promouvoir</i>	to promote
<i>la rencontre</i>	meeting
<i>République démocratique du Congo</i>	Democratic Republic of the Congo
<i>représenter</i>	to represent
<i>le tennis de table</i>	table tennis
<i>y compris</i>	including

Theme 3

Vocabulary

<i>communiquer</i>	to communicate
<i>connaître</i>	to know (person, place)
<i>le copain</i>	friend, boyfriend
<i>la copine</i>	friend, girlfriend
<i>de plus</i>	in addition
<i>de temps en temps</i>	from time to time
<i>l'e-mail (m.)</i>	e-mail
<i>en streaming</i>	streamed
<i>envoyer</i>	to send
<i>l'événement (m.)</i>	event
<i>facile</i>	easy
<i>le film d'action</i>	action film
<i>... fois par ...</i>	... time per ...
<i>l'influence (f.)</i>	influence
<i>informatif</i>	informative
<i>le magazine</i>	magazine
<i>le monde</i>	world
<i>l'opinion (f.)</i>	opinion
<i>l'outil (m.)</i>	tool
<i>par</i>	by
<i>toujours</i>	always
<i>vendre</i>	to sell
<i>le(s) vêtement(s) (m.) (pl.)</i>	clothes
<i>le vidéo</i>	video

8.1F Le monde avant et après Internet

<i>l'appli (f.)</i>	app
<i>content(e)</i>	happy, glad, pleased
<i>le danger</i>	danger
<i>devoir</i>	to have to, must
<i>la façon</i>	way, manner
<i>faire attention à</i>	to be careful of, to pay attention to
<i>faire des progrès</i>	to make progress
<i>le jeu vidéo</i>	video game
<i>leur(s) leur</i>	their
<i>maintenant</i>	now
<i>mais</i>	but
<i>mondial(e)</i>	global
<i>ne ... jamais</i>	never
<i>l'ordinateur portable (m.)</i>	laptop
<i>présent(e) (adj.)</i>	present
<i>seulement</i>	only
<i>le smartphone</i>	smartphone
<i>la société</i>	society
<i>la technologie</i>	technology

<i>le téléphone</i>	phone
<i>tout d'abord</i>	first of all
<i>travailler</i>	to work
<i>la vie quotidienne</i>	daily life

8.2G Ton portable, ta vie

<i>avant (de)</i>	before
<i>clair(e)</i>	clear
<i>complet/complète</i>	complete
<i>découvrir</i>	to discover
<i>disponible</i>	available
<i>l'école (f.)</i>	school
<i>elles</i>	they (female)
<i>en bonne santé</i>	in good health
<i>expliquer</i>	to explain
<i>faire la fête</i>	to party, celebrate
<i>faire mes devoirs</i>	to do my homework
<i>faire une promenade</i>	to go for a walk
<i>le festival</i>	festival
<i>gratuit(e)</i>	free
<i>Ils</i>	they (male)
<i>la mode de vie</i>	way of life, lifestyle
<i>penser</i>	to think
<i>les recherches (f. pl.)</i>	research
<i>recycler</i>	to recycle
<i>la région</i>	region
<i>le sport</i>	sport
<i>la tablette</i>	tablet (computer)
<i>tchatter</i>	to chat
<i>tout(e)s</i>	all

8.2F J'utilise la technologie!

<i>à l'avenir</i>	in the future
<i>l'anniversaire (m.)</i>	birthday
<i>appeler</i>	to call
<i>cependant</i>	however
<i>changer</i>	to change
<i>la chanson</i>	song
<i>le contenu</i>	content
<i>cool</i>	cool
<i>la dépendance</i>	addiction
<i>en ce moment</i>	at the moment
<i>enregistrer</i>	to record
<i>impossible</i>	impossible
<i>inaccessible</i>	inaccessible

Grammaire



Demonstrative adjectives

French has one set of words for both 'this/these' and 'that/those':

Masculine	Feminine	Plural
<i>ce</i>	<i>cette</i>	<i>ces</i>
<i>cet (+ vowel)</i>		

Ce film est super.

Cet influenceur a beaucoup de succès.

Cette célébrité travaille en Belgique.

Ces photos sont extraordinaires.

Grammaire



Revising infinitive verbs

Infinitives end in *-er*, *-ir* or *-re* and are translated as 'to ...' or '...ing'.

utiliser (to use) *finir* (to finish) *vendre* (to sell)

We use an infinitive after *aimer*, *adorer* and *détester* to express likes and dislikes:

J'adore lire des magazines.

I love **to read / reading** magazines.

Je n'aime pas écouter la radio.

I do not like **to listen / listening** to the radio.

Theme 3 Foundation Vocabulary

Words that are highlighted in grey in this list are words that may be useful, but you won't need to know them for the exam.

7.1G ¿Cómo te gusta viajar?

el avión plane
el barco boat
la bicicleta bike, bicycle
el billete ticket
la carretera road
el coche car
coger to catch
de pie standing, on foot
el extranjero abroad
la estación station
ir de compras to go shopping
lento/a slow
llegar to arrive
el metro metro, tube, underground
el puerto port, harbour
relajante relaxing
salir to leave
el tren train
viajar to travel

7.1F ¿Qué haces durante las vacaciones?

al aire libre in the open air, outdoors
alojarse to stay
aprender to learn
el baloncesto basketball
el bosque wood, forest
buscar to look for
la carretera road
la ciudad town, city
cocinar to cook
conducir to drive
conocer to know (a person or place)
la costa coast
decidir to decide
descansar to rest
el edificio building
emocionante exciting
el/la empleado/a employee
el equipo equipment

la estrella star
excelente excellent
la excursión trip
la foto photo
fresco/a cool, fresh
el fuego fire
la habitación room
hacer camping to go camping
histórico/a historic
el hotel hotel
el interés interest
el invierno winter
ir de compras to go shopping
la isla island
el jardín garden
el lado side
lleno/a full
el lugar place
la maleta suitcase
el mercado market
mirar to look at
la mochila rucksack
montar to set up, to ride
la naturaleza nature
nuestro/a our
el país country
el paisaje country, countryside
pasado/a past
perderse to get lost
la piscina swimming pool
el plano map, street plan
la playa beach
principal main
probar to try, try out
la recepción reception
el recuerdo souvenir
el regalo present, gift
reservar to book
el restaurante restaurant
el sitio place
sobre on
tener calor to be hot
la tienda tent, shop
tomar el sol to sunbathe
el/la turista tourist
vender to sell
el verano summer

el viento wind
visitar to visit

7.2G Una visita a Andalucía

abril April
el acuario aquarium
además de as well as
andar to walk
el árbol tree
la arquitectura architecture
el arte art
el caballo horse
la cámara camera
el castillo castle
la catedral cathedral
celebrarse to be held
cerca (de) near (to)
la cultura culture
el desfile parade
entrar en to go into
el espectáculo show
la excursión trip, visit, excursion
la fiesta fiesta, festival
el flamenco flamenco (dance/music)
genial great
hay que you have to, one must
los hijos children, sons and daughters
la iglesia church
la isla island
el lado side
lejos far
la mezquita mosque
millón million
los niños children
el origen origin
el palacio palace
el parque acuático water park
el parque temático/de atracciones theme park
el plano street map
la plaza de toros bull ring
la plaza mayor main square
popular popular
el puente bridge, Bank Holiday
quedarse to stay
la razón reason

recomendar to recommend
el recuerdo souvenir
seguro/a safe, secure
el sur south
tan so
la tradición tradition
tradicional traditional
un poco a little, a bit
vale la pena it's worthwhile
el vestido dress
la vista view

7.2F ¿Qué tipo de vacaciones prefieres?

bajar de to get off (transport)
caer(se) to fall, to fall over / down
caliente warm, hot
la catedral cathedral
celebrar(se) to celebrate, to hold (event)
cenar to dine, have the evening meal
conducir to drive
la cosa thing
la costumbre custom
el edificio building
el extranjero abroad
las gafas de sol sunglasses
hermoso beautiful
ir al extranjero to go abroad
llover to rain
mandar to send
mejorar to improve
el mensaje message
mezquita mosque
montar a caballo to ride a horse, go horse riding
el mundo world
el museo museum
la nacionalidad nationality
los/as niños/as children
el noroeste north-west
el norte north
la oportunidad opportunity
el país country
la parte part
pasarlo bien to have a good time
pintar to paint
pobre poor

practicar to practise
¿qué tal...? how is...?
quedar(se) to stay, remain
quemar, quemarse to burn, get sunburnt
el reloj watch, clock
la Semana Santa Easter Week, Holy Week
la sinagoga synagogue
los tíos uncle(s) and aunt(s)
la tradición tradition
valer la pena to be worth it
la zona area

Gramática

Revising comparatives

Remember these words and phrases from unit 3.1.

más – more *menos* – less
que – than *tan ... como* – as ... as

To say 'The ticket is cheaper' in Spanish, just say (literally) 'The ticket is more cheap':

El billete es más barato.

The adjective always agrees with the noun it describes.



Los verbos



Me gustaría, me encantaría, preferiría

These are important phrases to learn. They are in the conditional tense which you will see in more detail on the next page.

		with a verb	with a noun
I would like	<i>Me gustaría</i>	<i>Me gustaría viajar.</i>	<i>Me gustaría (tener) una bicicleta nueva.</i>
I would love	<i>Me encantaría</i>	<i>Me encantaría ir.</i>	<i>Me encantaría (hacer) una excursión en barco.</i>
I would prefer	<i>Preferiría</i>	<i>Preferiría ir a pie.</i>	<i>Preferiría (alojarme en) un hotel en la costa.</i>

Los verbos



The conditional tense

To form the conditional tense ('would' ...), follow these steps.

Take the infinitive (like *viajar*, *comer*, *ir*) and add the following endings:

Person	Ending	Examples	English
<i>yo</i>	<i>-ía</i>	<i>viajaría</i>	I would travel
<i>tú</i>	<i>-ías</i>	<i>pagarías</i>	you would pay
<i>él / ella / usted</i>	<i>-ía</i>	<i>vendería</i>	he / she would sell
<i>nosotros / as</i>	<i>-íamos</i>	<i>comeríamos</i>	we would eat
<i>vosotros / as</i>	<i>-íais</i>	<i>conduciríais</i>	you would drive
<i>ellos / ellas / ustedes</i>	<i>-ían</i>	<i>irían</i>	they would go

Note the irregular stem (instead of the infinitive) for these five verbs:

tener > *tendr-* (*tendría*, *tendrías*, etc.)

poder > *podr-* (*podría*, *podrías*, etc.)

hacer > *har-* (*haría*, *harías*, etc.)

poner > *pondr-* (*pondría*, *pondrías*, etc.)

haber > *habría* – there would be

8.1G Las redes sociales

el acoso bullying

adicto/a addict, addicted

afortunadamente fortunately

alguien someone

alguno/a some

la app app

aproximadamente approximately

cambiar to change

el comentario comment

cómo how

compartir to share

comunicar to communicate

conectar to connect

la confianza confidence

cruel cruel

destruir to destroy

diario/a daily

educativo/a educational

la estrella star

falso/a false

gratis free (of charge)

intercambiar to exchange

el juego game

la lista list

lo bueno the good thing

el mensaje message

el número number

olvidar to forget

la página page

los parientes relatives

poco a poco bit by bit

por ciento per cent

propio/a own

quince fifteen

la red net, network

la red social social network

robar to steal

el/la seguidor(a) follower

segundo/a second

similar similar

tantos/as... como as/so many... as

la tarea task, piece of homework

el uso use

el/la usuario/a user

útil useful

varios/as several

la ventaja advantage

el vídeo video

la videollamada video call

8.1F Los cambios en la tecnología

avanzado/a advanced

básico/a basic

el/la compañero/a classmate, partner

la conversación conversation

digital digital

discutir to discuss, argue

diseñar to design

enviar to send

la información information

el/la ingeniero/a engineer

inteligente intelligent, smart

inventar to invent

el juego game

el kilo kilo

ligero/a light (in weight)

la llamada call

la llegada arrival

el minuto minute

el momento moment

navegar to surf, navigate (i.e. the Internet)

original original

permitir to allow, permit

pesado/a heavy

pesar to weigh

el portátil laptop

público/a (adj.) public

realista realistic

recargar to charge, recharge

responder to reply

sencillo/a simple

la serie series

táctil touch (ie. touch screen)

el teléfono telephone

la televisión television

el tenis tennis

la transmisión broadcast

treinta thirty

último/a last, latest

el videojuego video game

8.2G La tecnología en casa

antes de before

el aparato gadget

arreglar to sort, arrange, fix

la aspiradora vacuum cleaner

automático/a automatic

bajar to download

ciento hundred

conmigo with me

el correo electrónico email

demasiado too, too much

el diseño design

encender to light, turn on

feo/a ugly

funcionar to work, function

hacer fotos to take photos

horrible horrible

instalar to install

el libro electrónico e-book

llevar to take, carry, wear

la luz light

mantenerse en contacto to keep in touch

mayor older, bigger

la pantalla screen

pesar to weigh

el portátil laptop

que viene next

romper to break

roto/a broken

la seguridad security, safety

la tableta tablet

8.2F ¿Cómo usas tu móvil?

alguno/a some

la app app

los auriculares headphones

la calculadora calculator

el/la cantante singer

como as, like

las compras shopping

la cosa thing

despertar to wake up

el diccionario dictionary

educativo/a educational

el ejemplo example

electrónico/a electronic

el familiar family member

la función function

gratis free

el lector electrónico e-book

lejos far

la lista list

mantenerse to keep (oneself)

medio/a average

molestar to bother, annoy

el nombre name

el número number

oír to hear

profundamente deeply

prohibido/a forbidden, banned

quién who

quitar to remove

el ruido noise

saber to know

la tecnología technology

todas partes everywhere

el tráfico traffic

Gramática



Talking about good and bad points

When you talk about social media, it is useful to have several ways in which to describe what is good and bad about each one. Here are some useful phrases.

Positive points

<i>Me gusta...</i>	I like...
<i>Lo bueno de...</i>	The good thing about...
<i>La ventaja de...</i>	The advantage of...
<i>Se puede + infinitive...</i>	You can...
<i>Tiene...</i>	It has...

Negative points

<i>No me gusta...</i>	I don't like...
<i>Lo malo de...</i>	The bad thing about...
<i>La desventaja...</i>	The disadvantage...
<i>No se puede + infinitive...</i>	You cannot...
<i>No tiene...</i>	It does not have...

Los verbos



The perfect tense

This tense is the equivalent of the English 'has ____ -ed, have ____ -ed' (I have worked, it has changed). This is how to form it:

	the present tense of <i>haber</i>	+ past participle (____-ed)	Examples	
I have you (sing.) have he / she / it has	<i>he</i> <i>has</i> <i>ha</i>	<i>-ado</i> <i>-ido</i>	<i>he viajado</i> <i>has encontrado</i> <i>ha recibido</i>	I have travelled you (sing.) have found he / she / it has received
we have you (pl.) have they have	<i>hemos</i> <i>habéis</i> <i>han</i>		<i>hemos seguido</i> <i>habéis respondido</i> <i>han aprendido</i>	we have followed you (pl.) have replied they have learned

There are lots of irregular past participles in English (like eaten, fallen, understood, flown, seen) but only a few in Spanish. One common one is **visto** (seen): I have seen – *he visto*.

<i>cantar</i>	to sing
<i>la canción</i>	song
<i>caro/a</i>	expensive
<i>el cine</i>	cinema
<i>el concierto</i>	concert
<i>la cultura</i>	culture
<i>emocionante</i>	exciting
<i>la energía</i>	energy
<i>la entrada</i>	ticket
<i>escuchar</i>	to listen
<i>el estilo</i>	style
<i>la estrella</i>	star
<i>Estados Unidos</i>	United States
<i>la fama</i>	fame
<i>la forma</i>	way
<i>hacer</i>	to make, do
<i>el ícono</i>	icon
<i>llevar</i>	to wear
<i>mejor</i>	better, best
<i>morir</i>	to die
<i>nacer</i>	to be born
<i>nuestro/a</i>	our
<i>opinar</i>	to believe, think
<i>otro/a</i>	other
<i>pasar de moda</i>	to be out of fashion
<i>la pasión</i>	passion
<i>la película</i>	film
<i>pensar</i>	to think
<i>personal</i>	personal
<i>presentarse</i>	to introduce oneself
<i>seguir</i>	to continue, follow
<i>tanto/a</i>	so many, so much
<i>el tiempo</i>	time
<i>todavía</i>	still
<i>único/a</i>	only, unique
<i>urbano/a</i>	urban
<i>la vez</i>	time

6.2G Una TikToker sin descanso

<i>aburrido/a</i>	boring
<i>antes</i>	before
<i>el baile</i>	dance
<i> cambiarse (de ropa)</i>	to get changed
<i>cenar</i>	to have dinner
<i>desayunar</i>	to have breakfast
<i>el descanso</i>	rest
<i>despertar(se)</i>	to wake up
<i>dormirse</i>	to fall asleep

<i>en estos momentos</i>	at the moment
<i>estupendo/a</i>	wonderful
<i>el evento</i>	event
<i>famoso/a</i>	famous
<i>finalmente</i>	finally
<i>la foto</i>	photo
<i>grabar</i>	to record
<i>la habitación</i>	room, bedroom
<i>jugar videojuegos</i>	to play videogames
<i>lavarse los dientes</i>	to brush one's teeth
<i>lentamente</i>	slowly
<i>luego</i>	then
<i>la moda</i>	fashion
<i>normalmente</i>	normally
<i>nunca</i>	never
<i>pensar</i>	to think
<i>el pijama</i>	pyjamas
<i>por la mañana</i>	in the morning
<i>primero (adv.)</i>	firstly
<i>quitarse</i>	to take off
<i>sacar fotos</i>	to take photos
<i>si</i>	if
<i>siempre</i>	always
<i>sin</i>	without
<i>tener tiempo</i>	to have time
<i>el uniforme</i>	uniform
<i>usar</i>	to use
<i>vestirse</i>	to get dressed
<i>el video</i>	video
<i>el videojuego</i>	videogame

6.2F Famosos que valen la pena

<i>a mi modo de ver</i>	as I see it
<i>agresivo/a</i>	aggressive
<i>antipático/a</i>	unpleasant
<i>la ascendencia</i>	heritage
<i>aunque</i>	although
<i>el cine</i>	cinema
<i>la ciudad</i>	city
<i>como</i>	as
<i>comprensivo/a</i>	understanding
<i>la comunidad</i>	community
<i>de niño/a</i>	as a child
<i>deshonesto</i>	dishonest
<i>donar</i>	to donate
<i>educado/a</i>	polite
<i>egoísta</i>	selfish

<i>emocionante</i>	exciting
<i>enfermo/a</i>	ill
<i>la escuela</i>	(primary) school
<i>Estados Unidos</i>	United States
<i>estar seguro/a</i>	to be sure
<i>la fama</i>	fame
<i>hablar</i>	to speak
<i>humilde</i>	humble
<i>el idioma</i>	language
<i>importante</i>	important
<i>indígena</i>	native, indigenous
<i>inspirar</i>	to inspire
<i>el/la joven</i>	young person
<i>latinoamericano/a</i>	Latin American
<i>maleducado/a</i>	impolite
<i>mexicano/a</i>	Mexican
<i>el/la modelo a seguir</i>	role model
<i>el norte</i>	north
<i>la nominación</i>	nomination
<i>Nueva York</i>	New York
<i>opinar</i>	to think
<i>optimista</i>	optimistic
<i>el país</i>	country
<i>el papel</i>	role
<i>parecer</i>	to seem
<i>la participación</i>	participation
<i>participar</i>	to participate
<i>perezoso/a</i>	lazy
<i>pesimista</i>	pessimistic
<i>el premio</i>	award, prize
<i>el proyecto</i>	project
<i>puertorriqueño/a</i>	Puerto Rican
<i>que yo sepa</i>	as far as I know
<i>recibir</i>	to receive
<i>reducir</i>	to reduce
<i>sincero/a</i>	honest
<i>el sur</i>	south
<i>la televisión</i>	TV
<i>trabajador(a)</i>	hard-working
<i>único/a</i>	unique
<i>valer la pena</i>	to be worth it
<i>la verdad</i>	truth
<i>la vida social</i>	social life
<i>la visibilidad</i>	visibility, awareness
<i>votar</i>	to vote
<i>la voz</i>	voice

Los verbos



Reflexive verbs

They are used when someone does an action for themselves. The *se* at the end of the infinitive form of the verb indicates that the verb is reflexive and must be conjugated with an appropriate reflexive pronoun.

<i>levantarse</i>	to get up
<i>me levanto</i>	I get up
<i>te levantas</i>	you (sing.) get up
<i>se levanta</i>	he / she gets up
<i>nos levantamos*</i>	we get up
<i>os levantáis*</i>	you (pl.) get up
<i>se levantan*</i>	they get up

* Higher tier only