BRISTOL METROPOLITAN ACADEMY

Knowledge Organisers 2021-22 Year 9 – Term 3

3rd January 2021	Week B
10th January 2021	Week A
17th January 2021	Week B
24th January 2021	Week A
31st January 2021	Week B
7th February 2021	Week A
14th February 2021	Week B

Complete your homework on the night stated e.g. if it is a Monday week A you will complete DT and English homework.

	Week A	**Week B**
Monday	English/DT	Science/MFL
Tuesday	Maths/Drama	ICT/PE
Wednesday	Science	English
Thursday	RS/Music	Geography/Art
Friday	History	Maths

How to use your knowledge organiser

Top tips:
1. Focus on the information you are most unsure of first
2. Follow the timetable in your homework book to make sure you are revisiting subjects equally
3. Don't panic if you don't remember all the information first time, keep revisiting it
4. You can ask your parents/carers to test you/check your work

Look

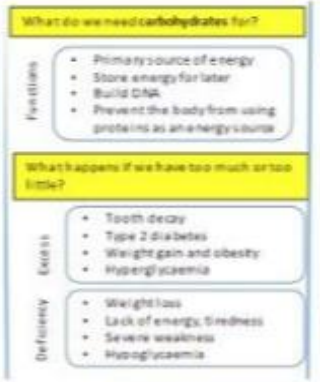
What topic/subject are you focusing on?

What task have you been set?

Self quizzing

You need to create 5 questions (with their answers) about the content on the knowledge organisers.

Top tip! Use subject specific language e.g. function. If you aren't sure what they mean, look it up, ask an adult or ask your teacher.



Questions you might consider:

1. What is a key function of carbohydrates?

It is our primary source of energy.

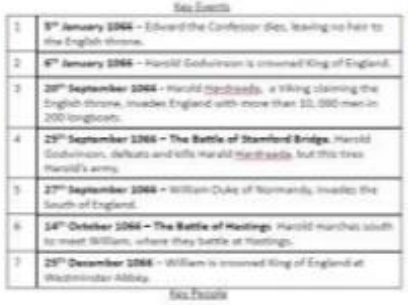
Write

Complete the task in your homework book.

Make sure to write the date, subject and topic you are focusing on (and underline them).

Revision

Here you are recording key facts/concepts to help you remember them.



You might write these key events out like a timeline.

Key events

5th January 1066 Edward the Confessor dies, leaving no heir to the English throne.

6th January 1066 Harold Godwinson is crowned King of England

Keyword/theme development

Here you are focusing on keywords/ themes and practising memorising them.

Key Terms	Definitions
State of matter	Matter is divided into three states: solid, liquid, and gas
Melting	Change of state from solid to liquid
Freezing	Change of state from liquid to solid
Evaporation	Change of state from liquid to gas
Condensation	Change of state from gas to liquid

Copying these words into your book can help you to remember them.

Check

Once you have finished go back and check your work against the knowledge organiser. Make any corrections crossing out mistakes with a single line.

Why not ask someone at home to check your work with you?

Contents:

Year 9 — Past Project

Content: In this project you will learn
Knowledge – different artists who have represented
Understand – What inspired these artists to create work and how to write about the work
Skills – You will learn how to analysis artists work, improve drawing skills, tonal work, ceramics
Outcome – Tonal drawing and ceramic piece

The Suffragettes' Movement

The women's suffrage movement was a decades-long fight to win the right to vote for women in the United States. It took activists and reformers nearly 100 years to win that right, and the campaign was not easy: Disagreements over strategy threatened to cripple the movement more than once.

The Civil Rights Movement

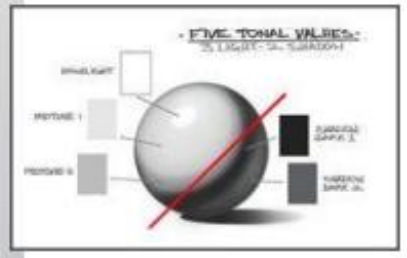
The civil rights movement in the United States was a decades-long struggle by African Americans and their like-minded allies to end institutionalized racial discrimination, disenfranchisement and racial segregation in the United States.

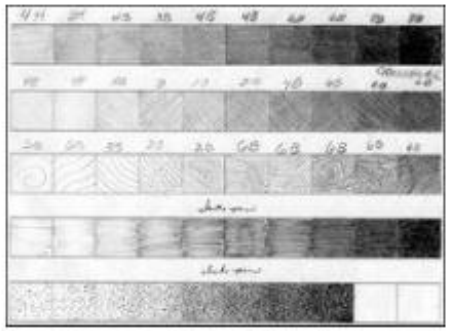
The Stonewall Riots

The Stonewall riots were a series of spontaneous, violent demonstrations by members of the gay community in response to a police raid that began in the early morning hours of June 28, 1969, at the Stonewall Inn in the Greenwich Village neighborhood of Manhattan, New York City.

KEYWORDS

Conflict
Inequality
Racism
Discrimination
Slavery
Apartheid
Female emancipation
Social Class
Gay rights





GSCE ART Annotation

Shape, form, space	Tone	Pattern and Texture	Line	Colour
Closed	Bright	Repeated	Fluent	Bright Bold
Open	Dark	Uniform	Free Rough	Primary
Distorted	Faded	Geometric	Controlled	Secondary
Flat	Smooth	Random	Powerful	Tertiary
Organic	Harsh	Symmetrical	Strong	Radiant
Deep	Contrasting	Soft	Geometric	Dull Vivid
Flat	Intense	Irregular	Angular	Contrasting
Positive	Sombre	Coarse Bold	Light	Deep
Negative	Grey	Uneven	Delicate	Monochrome
Foreground	Strong	Bumpy	Flowing	Harmonious
Background	Powerful	Rough	Simple	Complementary
Composition	Feint	Smooth	Thick Thin	Natural
Curvaceous	Light	Uneven	Horizontal	Earthy
Elongated	Medium	Spiky	Broken	Subtle
Large	Dark	Broken	Interrupted	Pale
Small	Dramatic	Furry	Rounded	Cool Warm
2D 3D	Large	Fine Flat	Overlapping	Saturated
	Small	Grid	Broken	Luminous
			Faint	Strong

Basic, simple, solid, loud, quiet, bright, realistic, stylised, observed, busy, vibrant, strange, interesting, balanced, lively, negative, recognisable, abstract, tactile, meaningful, symbolic, depressing, unique, emotive, hidden, textural, dynamic, disturbed, sophisticated, puzzling, optimistic, powerful, intentional, concealed, subtle.

Example

I have created this piece using watercolours, coloured pencil and oil pastel. I have learnt how to blend the watercolours to show different tones and use oil pastels to show the darkest tones and add texture. The piece shows strong shapes and vivid colours. I have added coloured pencils to show some areas in more detail and focus. The artist Georgia O'Keeffe has inspired my piece. In her work she uses bright, bold colours to show close up views of flowers with a range of dark to light tones. I aim to now further develop my piece by using other materials. I could do this by experimenting with block prints on watercolour back grounds or possibly try painting onto fabric to then stitch into to show more detail.

REMEMBER to check your.. Spellings, Grammar and Punctuation

Sentence Starter Help

Try thinking of your own too

- In this piece I have...
- The materials I have used are...
- The technique I have used is...
- Through working in this way I have learnt how to...
- I have shown... in the style of...
- This piece could develop further by including...
- The artist ..... has influenced my designs because...
- To develop this piece further I could...
- I think using... worked really well because...
- I am particularly pleased with... and I now aim to....

Year 9 - Computer Systems

Year 7 - Knowledge

Strong Passwords
Prevents unauthorised access to a computer system. A strong password contains: *Uppercase letters, Lowercase letters, Numbers, Symbols, 8 or more characters*

Saving Files
It is important to regularly save files/work so that you do not lose your work.

How to save a file?
1. Save in your documents
2. Save with a relevant file name
3. Saved in an appropriate folder structure
4. Save the file in a folder that is relevant to the topic

Save and Save As
- "Save" updates a file
- "Save As" creates another version of the file

Networks
Computers connected together that share data and resources.

Cloud Storage
Cloud computing is storage that you can access through the Internet

+ Files can be accessed from anywhere
+ You have unlimited storage space and can store for free
+ Allows you to create more local storage
+ Good form of a backup storage
+ Does not require expensive hardware
- You need internet access
- Has the potential to get hacked
- Data could be seen by a third party
- Can be expensive long term

Year 8 and 9 - Knowledge

Networks Types

Two or more computers connected together that share data and resources

LAN (Local Area Network)
Network in a small geographical area
Example: Small Office, School

WAN (Wide Area Network)
Network in a large geographical area
Example:The Internet

WPAN (Personal Area Network)
Network centred around a single user
Example: Bluetooth Headset, Hotspot

Advantages of Networks:
+ Sharing files is easier
+ Share hardware (printers)
+ Updates are central
+ User accounts can be stored centrally

Disadvantages of Network:
- Set up could be expensive
- Vulnerable to hacking
- Need specific hardware
- Might need a network manager

Bluetooth

Short range wireless connection

+ Very common connection type **and** Low power usage
- Low bandwidth **and** Short range

Wired and Wireless

Wired Networks
Computers connected together using wires.

+ Fast connection
+ More secure than wireless
- Set up could be expensive
- Wires are trip hazards
- Difficult to connect new devices

Wireless Networks
Computers connected together using wireless connections (Wi-Fi).

+ Freedom to move around
- Less secure
- Connection can be interrupted by walls and other electronic devices

Cyber Security

Malware - Any hostile or intrusive softwares

Hacking - People that gain unauthorised access to a computer

Prevention - Passwords, Antivirus, Firewall, Encryption

Year 9 Drama Knowledge Organiser. Make sure when you rehearse and perform your devised piece, you include the following skills and techniques:

Physical Skills

Body language
Interaction
Posture
Gait
Gesture
Spatial awareness
Proxemics
Control
Mannerisms
Facial expressions
Eye focus / contact
Energy
Stage presence
Characterisation

Blocking: the precise movement and positioning of actors on a stage

Vocal Skills

Volume
Diction
Emphasis
Accent
Intonation
Inflection
Emotional tone
Pitch
Pace
Pause

You can include:
Levels, mime, slow motion, direct address, flash back, flash forward, improvisation, silence, pause

Teamwork

It is important to work together as a team and commit clearly to that group:
- turn up on time
- be positive
- accept ideas
- respect other opinions

At the very beginning of the devising, things will not be perfect. Remember the bigger picture and be positive, knowing that details can be fine-tuned later on. Groups that are always evolving and experimenting with their ideas can experience more success with their work.

The final stages of the process

Run through the piece for an audience that understand its importance.
- get rid of things that don't work
- run the piece with any technical aspects(projection and sound)
- test sound levels and **sightlines**

Then ask for honest feedback and act on it.
- Does it make sense if it needs to?
- Have the initial aims and objectives been met?
- Is the desired message being received clearly?
- Is the pace appropriate?
- Is it running smoothly?
- Has everyone learned what happens, when and where?

Be prepared to make mistakes and be resilient enough to carry on, but most importantly, enjoy performing.

Year 9 D&T – Term 1 – Pewter Project

Select one symbol from the selection above.

Create a logo for a product/company of your choice using your chosen symbol.

You can achieve this by modifying your chosen symbol by applying a range of composition techniques to develop its shape, form, and visual appeal. Be as creative as possible.

Logo design principles

1. Simple - needs to be easily identifiable at a glance.
2. Memorable – should be easily recalled after just one look.
3. Original – Create a unique design that cannot be confused with another.
4. Timeless - should be modern yet timeless and should avoid trends.
5. Versatile - can be used in a variety of sizes and colours.
6. Appropriate - should be appropriate for the intended audience.

Keywords

Malleable – able to be hammered or pressed into shape without breaking
Innovative- new and original
Analysis - detailed examination of the something
Annotation- analysis added to a text or diagram
Alloy - a metal made by combining two or more metallic elements

What is Pewter?

Pewter is a malleable metal alloy consisting of tin, antimony, copper, bismuth, and sometimes silver. Modern pewter consists of are 94% tin.

Pewter has a low melting point (around 170–230 °C) making it ideal for melting on a chip forge and brazing hearth and casting.

2D Design Basic Tools

2D DESIGN V2

SELECT – Use this tool to select different to highlight objects.

LINE – This tool creates straight lines. Click to start the line, extend out and click to finish.

CIRCLE – This tool creates circle shapes. Click to start the circle, extend to the size needed and click to finish.

PATH – This tool creates curved lines through continual clicks.

RECTANGLE – This tool can be used to create both rectangular and square shapes.

TEXT – Use this tool to insert text onto your designs. The font, size and direction of the text can be changed.

DELETE PART – Use this tool to delete separate lines and objects.

DELETE ANY – Use this tool to delete whole lines and objects.

Isometric Drawing Shows Objects at 30°

1) Isometric drawing can be used to show a 3D picture of an object.
2) It doesn't show perspective (things don't get smaller in the distance), but it's easy to get dimensions right.
3) There are three main rules when drawing in isometric:
   - Vertical edges are drawn as vertical lines
   - Horizontal edges are drawn at 30°
   - Parallel edges appear as parallel lines

This drawing's been done on isometric dot paper. You could use plain paper and a 30°/60° set square instead.

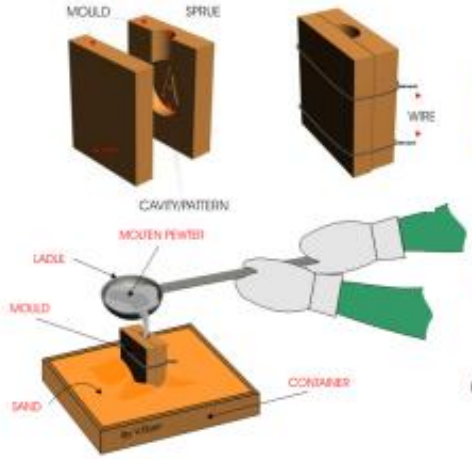
Crating Can Be Used to Draw 3D Shapes

Crating is where you start by drawing a box — the 'crate' — and gradually add bits on and take bits off till you get the right shape. For example, you can remove sections from a cuboid to make any other 3D shape.

1) When you're sketching a 3D object, it's easier if you imagine it as a basic shape.
2) First draw the basic geometric shape faintly.
3) Stick to a particular drawing technique — isometric drawing, for example.
4) The object can then be drawn within the box.
5) Details of the object can be added by drawing more geometric shapes on top.

CAD/CAM

CAD stands for Computer Aided Design.
It involves designing products on a computer, rather than using a pencil and paper.
CAD packages include 2D drawing software (e.g. Adobe® Illustrator®, CorelDRAW®, TechSoft 2D Design® and ArtCAM®) and 3D modelling software (e.g. SolidWorks®).
CAD helps designers model and change their designs quickly. It's easy to experiment with alternative colours and forms and you can often spot problems before making anything.
In 3D programs, you can view the product from all angles.
CAM stands for Computer Aided Manufacture.
It's the process of manufacturing products with the help of computers.
CAD software works out the coordinates of each point on the drawing. These are called x,y,z coordinates — x is the left/right position, y is forwards/backwards and z is up/down. The point where x, y and z meet is (0,0,0) — the datum.
CAM machines are computer numerically controlled (CNC) — they can follow the x,y,z coordinates and move the tools to cut out or build up your design.
For example, some milling machines are CAM machines. They remove material from a larger piece of material to shape and create a product.



Jewellers Clamp

Wire Wool

Needle Files

Polishing Machine

Metalworking Vice

Silicon Carbide Paper

Safety Gear

Evaluation

Designers evaluate their finished products or prototypes in order to test whether they work well and if the design can be corrected or improved. Whatever you have designed it is important to evaluate your work constantly during the project.
Evaluation can take a variety of forms:

- General discussion with other pupils, staff and others.
- Questionnaires / surveys carried out at any time during the project.
- Your personal views, what you think of existing designs.
- Most important of all - what do you think of your designs, prototypes and finished products ?
- Can you think of any other ways of evaluating your work ?

Context

McCarthyism – accusations of disloyalty, subversion , or treason without proper regard for evidence.
Italian Immigration – Immigrants usually faced persecution from other Americans, which is why they live together for protection.
American Dream – Life should be better, richer and fuller for everyone.
Greek Tragedy – Central character cannot avoid their tragic fate.

Plot

Eddie Carbone is an Italian longshoreman working on the New York docks. When his wife's cousins, Marco and Rodolfo, seek refuge as illegal immigrants from Sicily. Eddie agrees to shelter them. The trouble begins when his wife's niece is attracted to Rodolfo. Eddie's jealousy culminates in an unforgivable crime against his family and the Sicilian community.

Characters

Alfieri: An Italian-American lawyer. He narrates the story, speaking directly to the audience and attempts to make the social and moral implications of the story clear.
Eddie: An Italian immigrant and longshoreman (dockyard worker). He is the husband of Beatrice and Catherine's non-biological uncle. He is the **tragic hero** of the play.
Beatrice: An Italian immigrant and Eddie's wife. She has raised Catherine since the death of her mother. She is a warm and caring character.
Catherine: The orphaned niece of Beatrice and Eddie. Catherine has been sheltered by Beatrice and Eddie and wants to experience the world.
Marco: Cousin of Beatrice and an illegal Italian immigrant. He is hard working and plans to send the money he earns back to his family in Italy.
Rodolpho: Cousin of Beatrice and an illegal Italian immigrant. Rodolpho is seen as an effeminate (acting in a stereotypical feminine way) because he cooks, sews, sings and dances. He wants to be an American and gain wealth and fame. His relationship with Catherine causes problems with Eddie.

Symbolism

Brooklyn Bridge - Alfieri's viewpoint from the bridge that links Italian and American cultures and allows Alfieri to narrate past events to the audience.
Italy – Homeland, origin and cultural link to the people of that community.
High heels - For Catherine, high heels are representative of womanhood, flirtation and sexiness.

Key quotes

"I'm ashamed. Paper Doll they call him. Blondie now." – Eddie isn't happy with the way that Rodolpho presents himself. He worries that the other longshoreman will judge him and doubt his masculinity.
"My wife – she feeds them from her own mouth." – Marco tells Eddie and Beatrice how poor their family is in Italy. It makes it clear why he and Rodolpho have come to America.
"All the law is not in a book." – This links to the key themes of Justice and Honour. The Italian community live by their own rules that are outside the law. E.g. If you snitch, you are exiled from the community and may be beaten or killed.
"Called me a rat in front of the whole neighborhood." – Eddie shows his anger at Marco's words. He doesn't want to be dishonoured in the Italian community.
"Eddie, I never meant to do nothing bad to you." – Catherine shows how upset she is. She doesn't understand Eddie's behaviour and realises that her relationship with him has changed forever.
"He allowed himself to be wholly known, and for that I think I will love him more than all my sensible clients." – Alfieri respects Eddie and his outpouring of emotions. Alfieri feels that Eddie is a product of the Italian community and could not have changed his fate.

Key Words

Tragic hero: A main character who has a **tragic flaw** which leads to their downfall or death.
Tragic flaw: the character defect that causes the downfall of the **tragic hero.**
Tragedy: a genre of play which deals with tragic events and ends in an unhappy ending. It usually involves the downfall of the main character.
Foreshadowing: a warning of a future event.
Prologue: an event or act that leads to another.
Narrator: a person who retells or recounts the events of a novel or play.

Themes

Community –
Law versus Honour: American law (represented by Alfieri) is not followed in the Italian community. Instead, they follow their own form of justice based on **honour**. E.g. If you snitch, you will be exiled from the community and beaten/killed.
Masculinity: Gender stereotypes influence the characters, especially Eddie. He is determined to be masculine and is suspicious of Rodolpho's 'feminine' behaviour.
Love: Confusion between familial love and romantic love causes issues within the play.
Jealousy: Eddie's jealousy becomes his **tragic flaw** and leads to his downfall.

Unit 3: Identity Poetry

Benjamin Zephaniah: Born and raised in Birmingham. His poetry is influenced by music, poetry and street politics of Jamaica. Uses humour, rap and dub-rhythms to make poetry accessible. **Zaffar Kunial** was born in Birmingham to an English mother and a Kashmiri father. He now lives in Hebden Bridge. **A.K.Blakemore** - her poems explore a range of subjects: having a broken heart, exploitation, pop-culture, sunshine and covering more obscure topics. Spite inspired her to write. She was born in London; she still lives in London. She can be described as rebellious and confrontational. **John Agard:** Born in Guyana, South America in 1949, Agard moved to Britain in the late seventies. His poems explore cultural differences, class divisions and subverted racial stereotypes. **Sujata Bhatt** (1956) grew up in India but emigrated with her family to the United States in 1968. **Honey Birch** is a Slam Poet; she is Chinese and was adopted by white parents. **Elizabeth Acevedo** is a Dominican-American poet and author. She is also a National Slam Poetry Champion.

Saeed Jones was born in Memphis and raised in Lewisville, Texas. His poems often examine race, desire, power, and grief, and incorporate mythology. **Carol Ann Duffy** was born in Glasgow in 1955 to a Scottish father and an Irish mother. Duffy was the first LGBT poet to be nominated as Poet Laurette. **Vanessa Kisuule** is a Bristol City Poet and performer, winner of many slam competitions. **Maya Angelou** was a poet and civil rights activist. **Lucille Clifton:** represents African-American experience and family life during the Civil Rights Movement. She was born in New York in 1936.

Poems

1. **I Love Me Mudder.** Explores a relationship with his mother. The speaker shows how he values his mother and that their love is true and pure

2. ***'Us'*** by Zaffar Kunial describes the ways that the word us means both separation and unity and how that gap could be bridged

3. ***Peckham Rye Lane*** by Amy Blakemore is a portrait of a street in London and the chaos, absurdity, and peace.

4. **Oxford Don.** The speaker shows his frustration with the superior attitude of the Mr Oxford Don – a university professor - with regards to immigrants like himself.

5. **Search For My Tongue.** The poem's speaker is someone living in a foreign country who fears forgetting her native language. It explores how our language is linked to one's identity.

6. **. A Chinese Kid In A White Family** – Honey Birch's poem – is a one which shows the absurdity of stereotyping a person who has dual heritage. The speaker is Chinese adopted by white parents.

7. .**Names:** Xiomara is the novel's protagonist. She is a 15-year-old Dominican American teenager living in Harlem - a twin, trying to find her voice. Poetry is the way that allows her to do this; it allows her to question her upbringing and to defend herself, until she is able to find her true self.

8. **Boy In A Stolen Evening Gown.** The speaker is someone who cross dresses and identifies as being gay. He wants to be accepted for who he is.

9. ***'In Mrs Tilscher's Class'*** paints a vivid picture of a young child's experience in primary school, under the tutelage of the -loved Mrs Tilscher. The poem also traces the end of the child's journey from innocence to the tumult of adolescence

10. **Hollow:** A response to the destruction of the statue of Edward Colston, the slave owner.

11. **Still I Rise.** The poem is an assertion of the dignity and resilience of marginalized people in the face of oppression. It is also a celebration of her identity as a powerful black woman.

12. **You Celebrate With Me.** Throughout this poem, the speaker explores her journey and the obstacles that were in her way to becoming her true self

Tier 3 vocabulary

Meaning – the main message of the poem
Speaker – the voice of the poem.
Imagery – the words which paint images in the reader's mind.
Simile – indirect comparison (like/as)
Metaphor – direct comparison
Personification – when a non-living object is described as looking like or behaving like a human.
Tone – the feeling/atmosphere of the poem
Structure – the organisation of the poem, its rhyme scheme, the rhythm.
Stanza – grouped lines in a poem
Form – the type of poem – i.e. sonnet, ode.
Caesura – punctuation which occurs mid-line; slows the rhythm.
Enjambment – lack of terminal punctuation, speeding up the poem.
End-stopping – punctuation at the end of a line
Metre – number of beats per line
Plosive – sound made by stopping airflow – b,t,k, d, p; it creates a harsh sound.
Onomatopoeia – a word which sounds like the thing it is describing – i.e. bang
Alliteration – the repetition of the same sound
Sibilance – the repetition of the 's' sound

Tier 2 vocabulary

- Absurdity
- Confrontational
- Heritage
- Native
- Resilience
- Identity
- Adolescence
- Innocence
- Oppression
- Stereotype
- Myopic
- Bigot
- Sexuality
- Repressed
- Tolerance

Themes

Resilience: poets and their speakers show an unwillingness to be defeated; they present strong individuals who have managed to rise above their oppression.

Sexuality: in these poems, some speakers show their sexuality as a means of self-expression and power; others are less bold, uncertain of how others may respond to their sexuality.

Language and identity: some poets explore the importance of language and words which are a way that people think of their own identity; in a different way, some poets show how language is used as a means of power to make others feel unwelcome.

Year 9- Food

What do we need **proteins** for?

Functions
- Build enzymes and hormones
- Build cell membranes
- Repair and maintain tissues
- Defend the body (antibodies)
- Secondary source of energy

What happens if we have too much or too little?

Excess
- Kidney and liver diseases
- Weight gain

Deficiency
- Kwashiorkor
- Slowing growth rate
- Swelling

Protein alternatives

Vegetarians and **vegans** don't consume meat so instead they use protein alternative products which are manufactured in order to provide protein in a diet and protein rich foods.

Soy chunks

Tofu

Textured vegetable protein (TVP)

Tempeh

Beans, lentils, chickpeas

What do we need **carbohydrates** for?

Functions
- Primary source of energy
- Store energy for later
- Build DNA
- Prevent the body from using proteins as an energy source

What happens if we have too much or too little?

Excess
- Tooth decay
- Type 2 diabetes
- Weight gain and obesity
- Hyperglycaemia

Deficiency
- Weight loss
- Lack of energy, tiredness
- Severe weakness
- Hypoglycaemia

What do we need **fats** for?

Functions
- Source of energy
- Insulation
- Dissolve vitamins
- Build hormones
- Build cell membranes

What happens if we have too much or too little?

Excess
- Obesity
- Hypertension
- Coronary heart disease
- Fatty liver disease
- Type 2 diabetes

Deficiency
- Weight loss
- Vitamin deficiency
- Heart disease
- Feeling cold

There are two different types of fats

Macros

Protein
Build & Protects Muscle
found in meat, dairy & some plants

Fat
Provides Long Lasting Energy
found in nuts, oils, dairy & meat

Carbs
Quickest Source of Energy
found in fruits, veggies & grains

Micros

Vitamins
Made by Plants & Animals
found in meat, dairy & plants

Minerals
Consumed by Plants & Animals
found in meat, dairy & plants

Visible fats

Fats you can see, such as on meat are often saturated.

Invisible fats

Unsaturated fats you cannot see, such as in nuts and avocados. They are often good for the brain,

Butter

Cream

Saturated

Eggs

Olive oil

Unsaturated

Avocado

Micronutrients

Vitamins and minerals are essential nutrients that your body needs in small amounts to work properly.

Fat-soluble vitamins
Fat-soluble vitamins (vitamin A, D, E and K) are mainly found in:
animal fats, vegetable oils, dairy foods, liver and oily fish
While your body needs these vitamins to work properly, you don't need to eat foods containing them every day.

Water-soluble vitamins
Water-soluble vitamins (vitamin C, the B vitamins and folic acid) are mainly found in:
fruit and vegetables, grains, milk and dairy foods
These vitamins aren't stored in the body, so you need to have them more frequently.
If you have more than you need, your body gets rid of the extra vitamins when you urinate.

Minerals
Minerals include calcium and iron amongst many others and are found in:
Meat, cereals, nuts, fish, milk and dairy foods, fruit and vegetables

Minerals are necessary for 3 main reasons:
Building strong bones and teeth
Controlling body fluids inside and outside cells
Turning the food you eat into energy

Food Fortification

During processing, many food products lose their nutritional value.

The function of fortification is to:
- Restore nutritional value of foods.
- Improve nutritional value of foods.
- Make food more suitable for certain groups of consumers.
- Prevent diseases caused by malnutrition.

Some foods are fortified by law:

Wheat, flour and bread	Thiamine	To prevent beriberi disease, help release energy from food.
	Niacin	To prevent pellagra, help release energy from food.
	Calcium	To prevent rickets and osteoporosis.
	Iron	To prevent iron deficiency anaemia.
Vegetable fat spreads	Vitamin A	To prevent growth and eyesight issues, such as night blindness.
	Vitamin D	To prevent rickets and osteoporosis.
Semi-skimmed and skimmed milk	Vitamin A	To prevent growth and eyesight issues, such as night blindness.

Other foods, such as cereals and fruit juices, are fortified voluntarily.

9.10 Leisure and heathy living vocabulary list

Les activités	activities
Aller	to go
jouer	to play
manger	to eat
visiter	to visit
faire	to do
danser	to dance
boire	to drink
regarder	to watch
écouter	to listen
lire	to read
achêter	to buy
finir	to finish
voir	to see
écrire	to write
dormir	to sleep
nager	to swim
rencontre	to meet
voyager	to travel
chanter	to sing
envoyer des SMS	to text
contacter	to contact
téléphoner	to call
cuisiner	to cook
télécharger	to download
travailler	to work
aider	to help
méditer	to meditate
se rélaxer	to relax
se détendre	to rest

Les endroits	Places
Chez moi	At home
Chez mon ami	At my friend's house
Chez mon père	At my dad's
Chez ma mère	At my mum's
Chez mes grand-parents	At my grand-parents'
Dans ma chambre	In my room
Dans le salon	In the living room
Dans le jardin	In the garden
Dans ma zone	In my neighbourhood
En Angleterre	In England
À l'étranger	Abroad
En ville	In town
À la camagne	In the countryside
À la montagne	In the mountains
Au bord de la mer	By the seaside

Les gens	People
Avec	With
Mes amis	My friends
Mon frère	My brother
Ma soeur	My sister
Mes parents	My parents
Ma famille	My family
Seul(e)	Alone

Intensifiers

très – very	trop – too
tellement– so	vraiment – really
assez – quite	éxtremement – extremely
un peu – a bit	pas du tout - not at all

Adjetivos	Adjectives
Amable	Kind
Agradable	Pleasant
Content(e)	Happy
Bavard(e)	Chatty
Beau/belle	Beautiful
Amusant(e)	Fun
Migon(ne)	Cute
Joli(e)	Pretty
Propre	Clean
Parfait	Perfect
Rapide	Fast
Riche	Rich
Sage	Wise
Timide	Shy
Travailleur/se	Hard working
Triste	Sad
Ennuyeux/se	Boring
Embêtant(e)	Annoying
Serieux/se	Serious
Facile	Easy
Difficile	Difficult
Stricte	Strict
Moche	Ugly
Bruyant(e)	Noisy
Impoli(e)	Rude
Horrible	Horrible/Awful
Paresseux/se	Lazy
Sportif/ve	Sporty
Enrichissant/e	Enriching
Intéressant(e)	Interesting
Vieux/vieille	Old
Relaxant	Relaxing

Healthy living key verbs	
Se coucher	to go to bed
Avoir envid de	to fancy, to feel like
Courir	to run
Se droguer	to take drugs
Se soûler	to get drunk
Se sentir bien/mal	to feel well/ill
Être au régime	to be on a diet
Être en forme	to be fit
Éviter	to avoid
Fumer	to smoke
Essayer de (+ infinitive)	to try to
Se lever	to get up
Rester en forme	to keep fit
S'inquiéter	to worry
Goûter	to try, to taste,
Se sentir	to feel
Vaincre	to overcome
Avoir mal	to have a pain (in)
Être fatigué	to be tired

9.10 Leisure and heathy living

3 time frames
Infinitives
Time phrases

opinions
justifications
describing and comparing

Verbs and the present tense in French

The infinitive

When you look up a verb in the dictionary, you find its original, unchanged form which is called the ***infinitive*** (manger, boire, jouer, visiter, habiter, aller etc.). The infinitive ends in **–re**, **-er** or **–ir.**

Forming the present tense in French

Take off the last 2 letters of the infinitive (**–re**, **-er** or **–ir)** and add the following endings depending on the pronoun:

*Important! There are some key irregulars to learn which don't follow this pattern – aller (as shown here), être, avoir and faire are really important!

	RE verb	ER verb	IR verb
Je (I)	-s	-e	-s
tu (you)	-s	-es	-s
il/elle (he/she)		-e	-t
nous (we)	-ons	-ons	-issons
vous (you all)	-ez	-ez	- issez
ils/elles (they)	-ent	-ent	- issent

Verbs and the near future tense in French

You can talk about the future by using the **near future** tense.

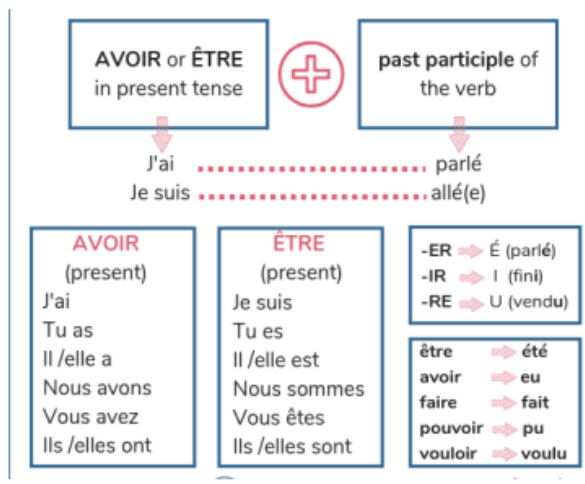
Use part of the verb ALLER + a + the infinitive to say what you are **going** to do.

Ce soir je vais jouer au tenis. *This evening I am going to play tennis.*

Demain Paul va a faire un gateau. *Tomorrow Paul is going to make a cake.*

Aller (to go)	
Je vais	I am going
Tu vas	You are going
Il/elle va	He /she/one is going
Nous allons	We are going
Vous allez	You (lot) are going
Ils/elles vont	They are going

Verbs and the past tense in French



9.10 Leisure and heathy living

3 time frames
Infinitives
Time phrases

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justifications

1.Expressing FUTURE intentions :

J'ai l'intention de + infinitive (I plan to/ I intend to ...)

Je voudrais + infinitive (I would like to...)

2.Using infinitives after j'aime/je m'aime pas/je déteste/je préfère :

You can also use an infinitive after opinion verbs such as aimer, détester and préférer. They are usually translated with a **gerund** (a verb ending with -ing) in English:

J'aime *habiter* à Newcastle - I like living in Newcastle.

Tu préfères *jouer* au foot ou au tennis? - Do you prefer playing football or tennis?

Je déteste *boire* du café parce que c'est dégoûtant – She hates drinking coffee because it's disgusting.

3.Opinions

J'aime - I like

J'aime beaucoup- I like **a lot**

Je n'aime pas beaucoup- I don't like **much**

Je préfère – I prefer

Je déteste - I hate

Je ne peux pas supporter - I can't stand

4.Justification

Parce que - because

Ainsi– therefore/so

Par conséquent - consequently

5.Comparisons

Plus.....que –more...than

Moins...que - less...than

Aussi...que – as...as

6.Superlative

Le/la plus – the most

Le/la moins – the least

Le/la mieux – the best

Le/la pire – the worse

7.Time phrases

Normalement - normally

D'habitude - usually

Géneralement - generally

Quelquefois – sometimes

Ensuite – next

Rarement - rarely

Le weekend prochain– next weekend

La semaine prochaine - next week

Le weekend dernier - last weekend

Le mois dernier - last month

L'été dernière - last summer

Pendant le confinement - during lockdown

Year 9 – Term 3 – *Do we agree with Greta?*

Born in Sweden in 2003

In 2018, Greta started her 'School Strike for Climate'

These strikes were picked up in the press and started the #Fridaysforfuture strikes, where children around the world skipped school on a Friday

Greta has Aspergers which she says is her '"superpower"

An environmental activist

In March 2019 – the first global co-ordinated strike saw 1.6 million people from 125 countries take part.

Founded in 2018

They want the government to declare a "climate and ecological emergency" and take immediate action to address climate change.

They are a "non-violent civil disobedience activist movement"

They hope to halt the next mass extinction and possible social collapse.

Their first UK disruption was in Parliament Square, London on 31st October, 2018. 1,500 people turned up to be 'peacefully disobedient'.

One of the two founding members is from Stroud, Gloucestershire.

Key Word	Definition
Climate Change	A change in global or regional climate patterns, in particular a change from the mid to late 20th century onwards due to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels. Warmer global temperatures.
Awareness	Gaining knowledge of a situation.
Campaigning	Working in an organised and active way towards a particular goal.
Sustainability	Meeting the needs of the present without damaging the future
Adaptation	The process of change in order to deal with a situation. In this instance, changing behaviours to deal with changes in our climate.
Mitigation	The action of reducing something. In this instance, actions to reduce greenhouse emissions.
Accountability	Being expected to justify your actions and being held responsible for them.
Climate crisis	A term describing the threat of global warming and the dangerous, irreversible changes to the global climate.
Individual	the role played by a single person/family.
Local	A small surrounding area eg town, city or local council area.
National	Country wide.
International	Across multiple countries.

Managing climate change			
Adaptation		Mitigation	
Managing water supply e.g. water meters	Changing agricultural systems e.g. shade trees	Using renewable energy sources e.g. wind & solar	Invest in more energy efficient appliances

German

9.10 Leisure and heathy living

3 time frames
Infinitives
Time phrases

opinions
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describing and comparing

Verbs and the present tense in German

The infinitive

When you look up a verb in the dictionary, you find its original, unchanged form which is called the ***infinitive*** (essen, trinken, spielen, sein, feiern, gehen etc.).

Forming the present tense in German

(I do or I am doing – German does not have a separate '-ing' form)

Take the infinitive – knock off the ending (en) and then add the ending relevant to the person you are talking about. Regular verbs follow the same pattern as 'machen'.

*Important! There are some key irregulars to learn which don't follow this pattern – sein and fahren (as shown here) and fahren are really important!

	machen To do	spielen To play	fahren To go
ich(I)	mache	spiele	fahre
du (you)	machst	spielst	fährst
er/sie (he/she)	macht	spielt	fährt
wir (we)	machen	spielen	fahren
ihr (you all)	macht	spielt	fahrt
Sie (you polite)/sie (they)	machen	spielen	fahren

German and the future tense

You can talk about the future 2 different ways

1. Use a future time phrase and the present tense

Nächste Woche spiele ich Tennis= Next week *I am going to play tennis.*

2. Use a part of 'werden' + an infinitive

Morgen werden wir ins Kino gehen. *Tomorrow we will go to the cinema*

Es wird toll sein = it will be great

werden (will/to be going to)	
ich werde	I will
du wirst	You (sing) will
er/sie/es wird	He /she/it will
wir werden	We will
ihr werdet	You (lot) are going
Sie/sie werden	You polite/They will

Verbs and the past tense in German

Take the present tense of 'haben' or 'sein' + the past participle.

Verbs to do with movement (gehen/fahren etc) take sein

haben = to have	sein = to be
ich habe	ich bin
du hast	du bist
er/sie/es hat	er/sie/es ist
wir haben	wir sind
ihr habt	ihr seid
Sie haben	Sie sind
sie haben	sie sind

Ich habe Tennis gespielt = I (have) played tennis

Ich bin ins Kino gegangen = I went to the cinema

9.10 Leisure and heathy living

3 time frames
Infinitives
Time phrases

opinions
justifications

1.Expressing FUTURE intentions :

Ich habe vor, zu + infinitive (I plan to/ I intend to …)

Ich möchte + infinitive (I would like to…)

2.Using gern/nicht gern/lieber :

These phrases are used with a verb

Ich wohne **gern** in Newcastle - I **like** living in Newcastle.

Gehst du **gern** ins Kino? - Do you like going to the cinema?

Ich spiele **nicht gern** Tischtennis, weil es langweilig ist. - I **don't like** playing football because it is boring

Ich lese lieber Bücher = I **prefer** reading books

3.Opinions

Ich mag - I like/**ich mag…nicht**

Ich liebe- I love

Ich interessiere mich für = I am interested in

Ich bin dagegen – I am against

Ich hasse - I hate

Ich kann…nicht leiden - I can't stand

…..gefällt mir = I like…..

4.Justification

denn – because

weil - because

deshalb– therefore/so

dennoch/trotzdem - nevertheless

obwohl = although

5.Comparisons

Add 'er' to the adjective. You can't add the word 'mehr' = more.

Er ist klein**er** = he is small**er** es ist billig**er** = it is cheap**er**

Exceptions are besser (better)/größer(bigger)/älter(older)

Superlative

You add an '-ste' to the adjective, sometimes '-este' to make it easier to say. Fred ist der Klein**ste** = Fred is the small**est.** Ellie ist die Laut**este**

Comparing Things

Joe ist älter **als** Fred = Joe is older **than** Fred

Joe ist **weniger** alt **als** Fred = Joe is **less** old **than** Fred

Joe ist **so** alt **wie** Fred = Joe is **as** old **as** Fred

Joe ist **genauso** alt **wie** Fred = Joe is **just as** old **as** Fred

7.Time phrases

normalerweise- normally **dann** – then **letztes Wochenende** - last weekend

gewöhnlich - usually **selten** - rarely **letzten Monat** - last month

neulich - recently **nächstes Wochenende**– next weekend **letzten Sommer** - last summer

manchmal – sometimes **nächste Woche** - next week **während Lockdown** - during lockdown

German

9.10 Leisure and heathy living vocabulary list

Die Aktivitäten	**activities**
gehen/fahren	to go
spielen	to play
essen	to eat
besuchen	to visit
machen	to do
tanzen	to dance
trinken	to drink
fernsehen	to watch TV
hören	to listen
lesen	to read
kaufen	to buy
beenden	to finish
sehen	to see
schreiben	to write
schlafen	to sleep
schwimmen	to swim
treffen	to meet
reisen	to travel
singen	to sing
SMS schicken	to text
kontaktieren	to contact
anrufen	to call/phone
telefonieren	To telephone
kochen	to cook
herunterladen	to download
arbeiten	to work
helfen	to help
nachdenken	to meditate
sich entspannen	to relax
sich ausruhen	to rest

Orte	**Places**
Zu Hause	At home
bei meinem Freund	At my friend's house
bei meinem Vater	At my dad's
bei meiner Mutter	At my mum's
bei meinen Großeltern	At my grand-parents'
in meinem Schlafzimmer	In my room
im Wohnzimmer	In the living room
im Garten	In the garden
in meiner Gegend	In my neighbourhood
in England	In England
im Ausland	Abroad
in der Stadt	In town
auf dem Land	In the countryside
in den Bergen	In the mountains
an der Küste	By the seaside

Leute	**People**
mit	With
Meine Freunde	My friends
Mein Bruder	My brother
Meine Schwester	My sister
Meine Eltern	My parents
Meine Familie	My family
allein	Alone

Intensifiers

sehr– very zu– too

so– so wirklich – really

ziemlich – quite äußerst – extremely

ein bisschen – a bit, überhaupt nicht - not at all

Adjektive	**Adjectives**
nett	Kind
angenehm	Pleasant
froh/glücklich	Happy
geschwätzig	Chatty
schön	Beautiful
lustig	Funny
niedlich/süß	Cute
hübsch/schön	Pretty
sauber	Clean
perfekt	Perfect
schnell	Fast
reich	Rich
klug	clever
schüchtern	Shy
fleißig	Hard working
traurig	Sad
langweilig	Boring
nervig	Annoying
ernst	Serious
einfach	Easy
schwer	Difficult
streng	Strict
hässlich	Ugly
laut	Noisy
unhöflich	Rude
schrecklich	Horrible/Awful
faul	Lazy
sportlich	Sporty
bereichernd	Enriching
interessant	Interesting
alt	Old
entspannend	Relaxing

Healthy living key verbs	
ins Bett gehen	to go to bed
Lust haben	to fancy, to feel like
laufen	to run
Drogen nehmen	to take drugs
sich betrinken	to get drunk
sich gut/krank fühlen	to feel well/ill
auf Diät sein	to be on a diet
Fit sein	to be fit
vermeiden	to avoid
rauchen	to smoke
versuchen	to try to
aufstehen	to get up
in Form bleiben	to keep fit
sich sorgen	to worry
schmecken/probieren	to try, to taste,
sich fühlen	to feel
überwinden	to overcome
Schmerzen haben	to have a pain (in)
müde sein	to be tired

History – Year 9 Knowledge Organiser Term 3

What was life like in Nazi Germany?

Key Events

1	**9th November 1918** - The leader of Germany, **Kaiser** Wilhelm, **abdicated**. A democratic government set up, **the Weimar Republic.**
2	**11th November 1918 -** Germany signed **armistice** agreement.
3	**28th June 1919 – The Treaty of Versailles** is signed deciding the terms of peace between the Allies and Germany.
4	**1923** – Germany was **struggling to pay the reparations** to France. They printed more money leading to **hyperinflation.** The USA provide a loan to help them recover.
5	**November 1923 – The Munich Putsch** – The NSDAP try to take over the Weimar Government, they fail and Hitler is sent to prison.
6	**October 1929 – The Wall Street Crash**, the American stock market collapsed and needed their loans back from Germany.
7	**30th January 1933** – Hitler is named **chancellor** of Germany.
8	**February 1933 – The Reichstag Fire** was blamed a Dutch communist and used as propaganda, support gained for NSDAP.
9	**23rd March 1933 - The Enabling Act** was passed which meant Hitler was able to make laws without consulting the Reichstag.
10	**30th June 1934** - **The Night of the Long Knives** - purge of SA leadership who threatened Hitler and other political opponents.
11	**2nd August 1934** – President **Hindenburg died**. **Hitler** combines the role of chancellor and president and becomes **Führer** (leader).

Key Skills

12	Causation	Explaining how events are caused by developments that came before.
13	Consequence	The result or effect of an event.
14	Source Analysis	**Nature**: What is the type of source? **Content**: What does it tell us? **Origin**: Who wrote it? When? Where? **Purpose**: Why was the source made?

Key Terms

15	peace armistice	a document which is signed to halt fighting whilst peace negotiations take place.
16	November criminals	the name given to the men who signed the peace armistice.
17	abdication	Renouncing (giving up) the throne.
18	Treaty of Versailles	A treaty which formally ended WWI.
19	reparations	Germany was to made to pay £6.6 billion reparations for damage during the war.
20	NSDAP	National Socialist German Workers' Party – Was known as the Nazi Party.
21	Weimar Republic	The democratic government elected after the end of WWI.
22	chancellor	The head of the German government appointed by the president.
23	Reichstag	The name of Germany's parliament.
24	propaganda	Information, can be biased, that promotes a political cause/point of view.
25	Third Reich	The name of the Nazi regime (government).
26	Kinder, Küche and Kirche	'Children, Kitchen, Church.' Nazi's asked women to do these instead of work.

Key Groups/People

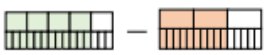
								
Kaiser Wilhelm	**Adolf Hitler**	**Joseph Goebbels**	**President Hindenburg**	**SA**	**SS**	**Gestapo**	**Hitler Youth**	**League of German Maidens**
Leader of Germany during WW1 until 1918.	German politician and leader of the Nazi Party.	Nazi minister for propaganda 1933 - 1945.	President of Germany from 1925 – 1934.	Protectors of Nazi leaders formed in 1921.	Established 1925 to protect Hitler & then policed Third Reich.	The Nazi's secret police force.	The HJ, boys would join the main group from age 14.	The female equivalent of the HJ they would join from age 14.

Maths

Add, Subtract and multiply fractions

Addition and Subtraction

$\frac{4}{5} - \frac{2}{3}$



$\frac{12}{15} - \frac{10}{15} = \frac{2}{15}$

Use equivalent fractions to find a common multiple for both denominators

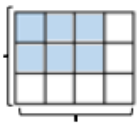
Multiplication

$\frac{3}{4} \times \frac{2}{3}$

$\frac{3}{4} \times \frac{2}{3} = \frac{6}{12}$ ← Parts shaded

Total number of parts in the diagram

Modelled:



Likeliness of a probability

Impossible: 0 or 0%

Even chance: 0.5, $\frac{1}{2}$ or 50%

Certain: 1 or 100%

The more likely an event the further up the probability it will be in comparison to another event. (It will have a probability closer to 1)

Sum to 1

Probability is always a value between 0 and 1

The probability of getting a blue ball is $\frac{1}{5}$

∴ The probability of **NOT** getting a blue ball is $\frac{4}{5}$

The sum of the probabilities is 1

Experimental data

Theoretical probability — What we expect to happen

Experimental probability — What actually happens when we try it out

The more trials that are completed the closer experimental probability and theoretical probability become

The probability becomes more accurate with more trials.
Theoretical probability is proportional

Sample space

The possible outcomes from rolling a dice

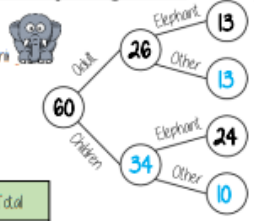
The possible outcomes from tossing a coin	1	2	3	4	5	6
H	1,H	2,H	3,H	4,H	5,H	6,H
T	1,T	2,T	3,T	4,T	5,T	6,T

P (Even number and tales) = $\frac{3}{12}$

Tables, Venn diagrams, Frequency trees

Frequency trees

60 people visited the zoo one Saturday morning. 26 of them were adults. 13 of the adult's favourite animal was an elephant. 24 of the children's favourite animal was an elephant.



Frequency trees and two-way tables can show the same information

The total columns on two-way tables show the possible denominators

P(adult) = $\frac{26}{60}$

P(Child with favourite animal as elephant) = $\frac{13}{37}$

Two-way table

	Adult	Child	Total
Elephant	13	24	37
Other	13	10	23
Total	26	34	60

Keywords

Event: one or more outcomes from an experiment
Outcome: the result of an experiment
Systematic: ordering values or outcomes with a strategy and sequence
Product: the answer when two or more values are multiplied together

Independent events

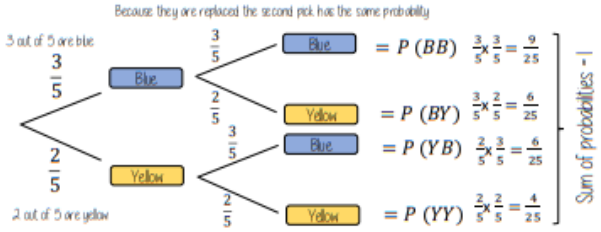
The outcome of two events happening. The outcome of the first event has no bearing on the outcome of the other

$P(A \text{ and } B) = P(A) \times P(B)$

Tree diagram for independent event

Isobel has a bag with 3 blue counters and 2 yellow. She picks a counter and replaces it, before the second pick.

Because they are replaced the second pick has the same probability

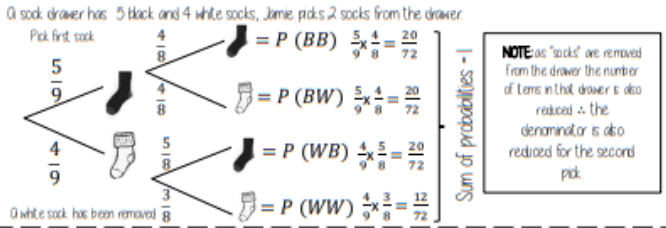


Dependent events

The outcome of the first event has an impact on the second event

Tree diagram for dependent event

A sock drawer has 5 black and 4 white socks, Jamie picks 2 socks from the drawer



NOTE: as "socks" are removed from the drawer the number of items in that drawer is also reduced ∴ the denominator is also reduced for the second pick.

Averages from lists

The Mean

A measure of average to find the central tendency... a typical value that represents the data

24, 8, 4, 11, 8,

Find the sum of the data (add the values)

55

Divide the overall total by how many pieces of data you have

55 ÷ 5

Mean = 11

The Mode (The modal value)

This is the number OR the item that occurs the most (it does not have to be numerical)

24, 8, 4, 11, 8,

This can still be easier if it the data is ordered first

Mode = 8

The Median

The value in the center (in the middle) of the data

24, 8, 4, 11, 8,

Put the data in order: 4, 8, 8, 11, 24

Find the value in the middle: 4, 8, 8, 11, 24

Median = 8

NOTE: If there is no single middle value find the mean of the two numbers left

For Grouped Data

The modal group – which group has the highest frequency

Averages from a table

Non-grouped data

Number of Siblings	0	1	2
Frequency	6	8	6
Subtotal	0	8	12

Overall Frequency: 20

Total number of siblings: 20

The data in a list: 0,0,0,0,0,0, 1,1,1,1,1,1,1,1 2,2,2,2,2,2

Mean: $\frac{\text{total number of siblings}}{\text{Total frequency}} = 1$

Grouped data

x Weight(g)	Frequency	Mid Point	MP x Freq
$40 < x \leq 50$	1	45	45
$50 < x \leq 60$	3	65	195
$60 < x \leq 70$	5	65	325

Overall Frequency: 9

Overall Total : 565

Mean: 62.8g

The data in a list: 45, 55, 55, 55, 65, 65, 65, 65, 65

Keywords

Population: the whole group that is being studied
Sample: a selection taken from the population that will let you find out information about the larger group
Representative: a sample group that accurately represents the population
Random sample: a group completely chosen by change. No predictability to who it will include

Bias: a built-in error that makes all values wrong by a certain amount
Primary data: data collected from an original source for a purpose
Secondary data: data taken from an external location. Not collected directly
Outlier: a value that stands apart from the data set

Maths

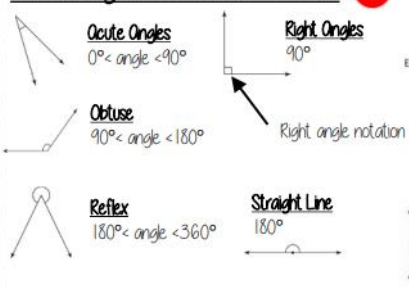
Keywords

Cardinal directions: the directions of North, South, East, West
Angle: the amount of turn between two lines around their common point
Bearing: the angle in degrees measured clockwise from North
Perpendicular: where two lines meet at 90°
Parallel: straight lines always the same distance apart and never touch. They have the same gradient
Clockwise: moving in the direction of the hands on a clock

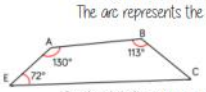
Keywords

Parallel: Straight lines that never meet
Angle: The figure formed by two straight lines meeting (measured in degrees)
Transversal: A line that cuts across two or more other (normally parallel) lines
Isosceles: Two equal size lines and equal size angles (in a triangle or trapezium)
Polygon: A 2D shape made with straight lines
Sum: Addition (total of all the interior angles added together)
Regular polygon: All the sides have equal length, all the interior angles have equal size

Basic angle rules and notation (R)



The letter in the middle is the angle
The arc represents the part of the angle



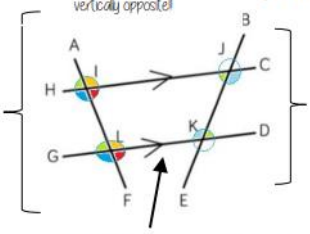
Angle Notation: three letters **ABC**
This is the angle at B = 113°
Line Notation: two letters **EC**
The line that joins E to C

Parallel lines

Still remember to look for angles on straight lines, around a point and vertically opposite!

Lines QF and BE are **transversals** (lines that bisect the parallel lines)

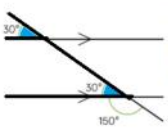
Corresponding angles often identified by their **"F shape"** in position



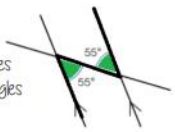
Alternate angles often identified by their **"Z shape"** in position

This notation identifies parallel lines

Alternate/ Corresponding angles

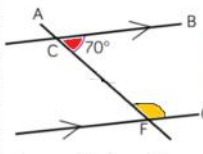


Because alternate angles are equal the highlighted angles are the same size



Because corresponding angles are equal the highlighted angles are the same size

Co-interior angles



Because co-interior angles have a sum of 180° the highlighted angle is 110°

As angles on a line add up to 180° co-interior angles can also be calculated from applying alternate/ corresponding rules first

Triangles & Quadrilaterals (R)

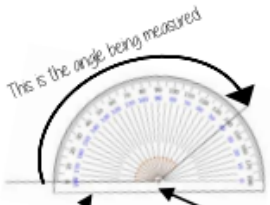
Link to steps

Side, Angle, Angle

Side, Angle, Side

Side, Side, Side

Measure angles to 180° (R)



Read from 0° on the base line. Remember to use estimation. This is an obtuse angle so between 90° and 180°

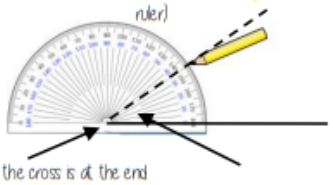
The base line follows the line segment

Make sure the cross is at the point the two lines meet

Draw angles up to 180° (R)

Draw a 35° angle

Make a mark at 35° with a pencil and join to the angle point (use a ruler)

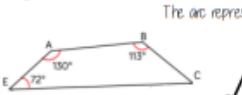


Make sure the cross is at the end of the line (where you want the angle)

The angle

Angle notation (R)

The letter in the middle is the angle
The arc represents the part of the angle



Angle Notation: three letters **ABC** This is the angle at B = 113°
∠ABC is also used to represent the angle at B

Scale drawings (R)

1 : 20

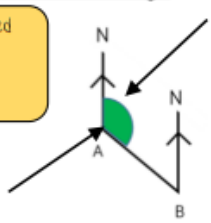
For every 1cm on the model there are 20cm in real life

Remember: Scale drawings ONLY change lengths and distances. Angles remain the same

Understand and represent bearings

- A bearing is always measured from **NORTH**
- It is always given as three figures

The angle indicated starts from the North line at A and joins the path connecting A to B



This angle shows the bearing of **B from A**

The bearing of B from A is calculated by measuring the highlighted angle

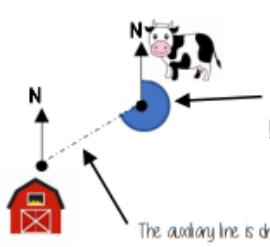
The sentence... "Bearing of ____ from ____" is really important in identifying the bearing being represented

Using **estimation** it is clear this angle is between 0-90° and 180°

Directions

Clockwise | Anti-Clockwise

Measure and read bearings



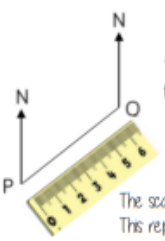
The bearing of the cow to the barn

This angle is measured from **NORTH**
It is measured in a clockwise direction
Estimation indicates this angle is between 180° and 270°
Use a protractor to measure accurately
Remember bearings are written as three figures

The auxiliary line is drawn to help you measure and draw the angle that is measured to represent the bearing

Scale drawings using bearings

Remember – angles **DO NOT** change size in scaled drawings



The bearing measurements do not change from "real life" to images

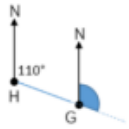
The scale may need to be calculated from the image. This represents 30km from P to Q

The units in the ratio scale are the same

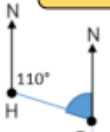
6cm = 30km
6:3,000,000

Bearings with angle rules

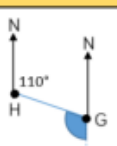
Because two North lines are **PARALLEL**....



They form **corresponding** angles and therefore are the same size



They form **co-interior** angles and add up to 180°

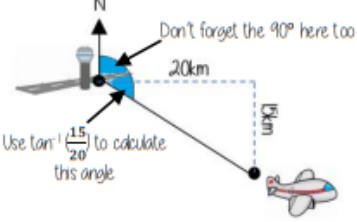


They form **alternate** angles and therefore are the same size

Bearings with right-angled geometry

Look for Right-angles
Pythagoras
Trigonometry (Sin, Cos, Tan)

A plane flies East for 20km then turns South for 15km. Find the bearing of the plane from where it took off.



Reggae

Year 9 – Term 3

Key listening

Dawn Penn – No no no

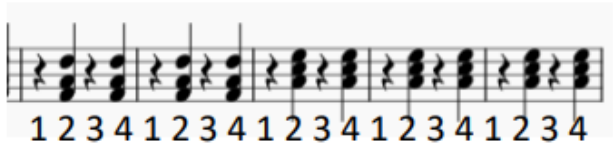
Toots and the Maytals – Monkey Man

Bob Marley and the Wailers – Buffalo Soldier

Marcia Griffiths – Back in the Day

Sister Nancy – Bam bam

Jimmy Cliff – The Harder they Come



'Skank' chords are played on beats 2 & 4

Reggae, style of popular music that **originated** in Jamaica in the late 1960s and quickly emerged as the country's dominant music. By the 1970s it had become an international style that was particularly popular in Britain, the United States, and Africa. It was widely perceived as a voice of the oppressed

Reggae Instruments

Heavy Electric **Bass** Guitar

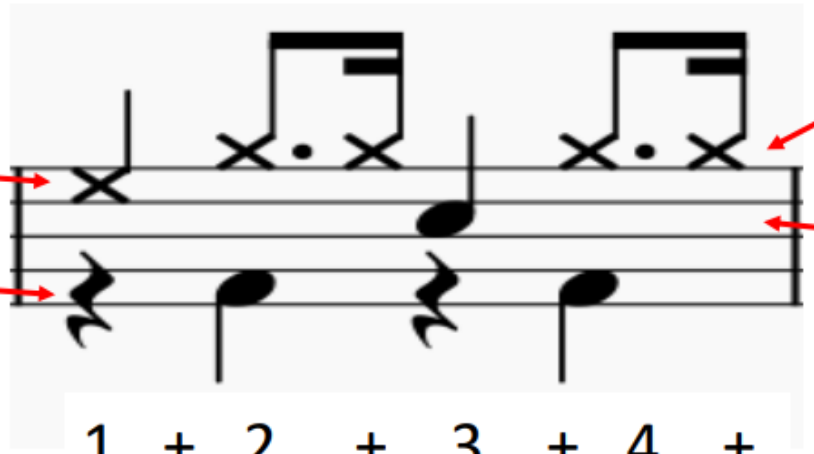
Electric Guitar playing chords and Solos

Keyboards and **Pianos** playing chords and riffs

Singers with lyrics about politics, love and everyday events

Horns and **Brass** instruments

African and cuban **Percussion**



'One Drop' Drum beats are used a lot in reggae and have an unusual rest on beat 1

Training Type	Example	Component of Fitness Used	Sporting Example
Continuous Training **Definition** - Training at a steady speed without rest. Improves cardiovascular endurance, it will also make the heart bigger and stronger. Needs to be between 20 minutes and 2 hours.	Continuously running for 1 hour at a steady speed.	Cardiovascular Endurance	Marathon running 
Fartlek Training **Definition** – Training that requires a change in speed and terrain. Often known as 'speed play'.	Cross-country running with sprint activities every so often. 	**Components of fitness used** – Aerobic endurance or anaerobic endurance depending on the intensity.	**Where it is used in sport** – Many team sports because of the constant change of speed and long periods of moderate activity. Also cross country running.
Interval Training **Definition** – Intervals of work and intervals of rest. You need to work at 90-100% of maximum intensity to improve anaerobic fitness. You need to work at 60-75% of maximum intensity to improve aerobic fitness.	For the anaerobic system – there should be short intervals of high intensity training. Fo the aerobic system – there should be intervals of slower work, but for a longer time period.	Components of fitness used – Aerobic and anaerobic fitness 	Where it is used in sport – Can be used for team sports such as hockey and football. Or it can be used for athletics running events.
Circuit Training **Definition** – A series of exercises arranged in a particular way called a circuit. The resistance used is mainly body weight and each exercise focuses on a different muscle group. There is a rest period between each exercise. Circuit training can also incorporate skills activities, such as a football player may include dribbling, passing, shuttle runs and shooting.	Press ups, star jumps, dips, squats, sit ups, skipping, crunches, chin ups.	Components of fitness used – Muscular endurance. 	Where it is used in sport – Rowers and boxers need muscular endurance to last the duration.
Weight Training **Definition** – Involves progressive resistance using a number of repetitions and sets depending on the strength required.	For maximum strength you need a high weight but low repetitions. For muscular endurance you need a low weight but high repetitions.	**Components of fitness used** – Muscular strength and muscular endurance 	**Where it is used in sport** – Weight lifters and rugby players need maximum strength. Swimmers and cyclists need strength endurance.
Plyometrics **Definition** – Involves rapid and repeated stretching an contracting of muscles, designed to increase strength and power. If the muscles have previously been stretched they tend to generate more force when contracting.	**Example** – In-depth jumping is when an athlete jumps on to and off boxes. It can involve any bounding, hopping and jumpin of the muscles.	**Components of fitness used** – Muscular strength and power. 	**Where it is used in sport** – Any events that involve sprinting, throwing and jumping.

RS

Knowledge Organiser: Christianity Beliefs

Key Words

Monotheistic: A religion which believes in one God
Holy: Separate and set apart for a special purpose by God
Omnipotent: Almighty – unlimited power
Benevolent: all-loving
Justice: what is right and fair
Trinity: God the father, Son and Holy Spirit
Holy Spirit: Gods presence in the world
God the Son: Jesus – enables humans to have a special relationship with God
Creation: God bringing the universe into being
The Word: Jesus – as described in the book of John
Genesis: The first book in the bible which has the creation story in it
Incarnation: God in human form – Jesus.
Resurrection: coming back from the dead
Blasphemy: saying or doing something which goes against God
Crucifixion: Roman method of execution where a person is nailed to a cross
Ascension: 40 days after the resurrection when Jesus returned to God in heaven
Afterlife: What happens when you die
Day of Judgement: God will judge all souls at the end of time
Heaven: Eternal happiness, being in the presence of God
Hell: Eternal suffering, absence of God
Purgatory: Catholic belief in which souls are cleansed in order to enter heaven
Sin: Any action against God
Original Sin: first sin in the world committed by Adam and Eve which means all humans are born with this in them
Salvation: saving the soul from sin and going to heaven thanks to Jesus' sacrifice
Grace: A quality of God which shows to humans that God loves them which they don't need to earn
Forgiveness: pardoning someone for their wrong doing
Atonement: restoring the relationship between people and God through the life, death and resurrection of Jesus
Mass: Ceremony, also called Eucharist, in which the death and resurrection of Jesus is celebrated using bread and wine

God as omnipotent, loving and just

Christians believe **God is all-powerful**. He has unlimited power and can do anything.
"Nothing is impossible with God"
God is all-loving he loves humans so wants what is best for them. Guidelines are given for us to live the best lives we can. Christians should love each other treating everyone with care and respect.
"God so loved the world he gave his one and only Son…" God has unlimited power and authority with complete love and therefore gives justice is a fair way. Christians should try and bring about fairness in the world.

Different Christian beliefs about Creation

Creation in Genesis 1:1-3 - God created the world in 6 days and rested on day 7. *"In the beginning God created the heavens and the earth"* God created the perfect world in the beginning. *"it was good"*
Creation in John 1:1-3 – *"In the beginning was the word….through him all things were made…"*. The word refers to Jesus and therefore he was present at the beginning of the world and involved in the creation of the world. This also shows the importance of the trinity being involved in the whole creation.

The Incarnation of Jesus – The Son of God

The Christmas story is the account of Jesus' birth. Some belief that this story shows Jesus had an ordinary birth as someone who was fully human, however was fully God as it says in the bible he was born through the immaculate conception. *"before they came together, she was found to be pregnant through the Holy Spirit"*. This is proof to Christians that Jesus was incarnate. Through the incarnation God showed himself as a human. *"The word became flesh and made his dwelling among us"*. God in human form makes it easier for some to understand his actions, including miracles and resurrection. Jesus is known as the Messiah or special leader. When Jesus was baptised God said, *"You are my son"*. Jesus was asked whether he was the Son of God, he replied, *"I am"*

The Oneness of God and the Trinity

Christians believe that the Trinity is made up of God the father, the son and the holy spirit. They believe God is three in one. There are not three Gods, but different forms of the same thing.

The Inconsistent Triad

Some people believe that you cannot have an all-loving God, who is all-powerful who allows evil and suffering to exist. Christians believe that God is transcendent (beyond our understanding) and therefore they can trust God when things in the world are not right.

The Crucifixion

It is believed that Jesus was arrested, tortured and then put to death by Pontius Pilate through crucifixion. As Jesus was fully human he suffered pain as an ordinary human did. *"Father, into your hands I command my spirit"* Jesus forgave the guards who crucified him and one of the criminals who was crucified next to him, *"You will be in paradise with me this day"*. One of the Roman centurions said, "Surely this is the Son of God".
The crucifixion influences Christians today by accepting Jesus sacrifice they can be forgiven for sin and go to heaven. They can acknowledge that suffering is a part of life and God can understand what it is like for someone to suffer.

Heaven and Hell

Based on judgement Christians believe that people will go to heaven or hell depending on how they behave and whether they have a belief in Jesus. Heaven is seen as being with God and eternal happiness where there is no suffering. Hell is seen as eternal torment or suffering and being absent from God and where the Devil is.
Some Christians believe that Heaven is a literal, real place you will go. Other Christians believe it is just being with God, in the same way hell may not be actually real but an absence of God.
In the book of revelation it mentions people who go to hell will burn in a lake of fire.
Catholics believe in a place called purgatory in which your soul goes to be cleansed as no-one is ready yet to go to heaven as as humans we are all imperfect.

The Resurrection and ascension

Jesus was buried in a tomb and left there until Easter Sunday because it was the Sabbath no-one could touch the body until after this. When Mary Magdalene returned to the tomb it was open and empty. An angel appeared and said Jesus had risen from the dead. The resurrection is one of the most important parts of Christianity as it proves Jesus was divine and not just a human. For the next few days and weeks Jesus appeared to several people including his disciples to tell them to spread the news that he had risen and that they should continue his message. The ascension happened 40 days after the resurrection when Jesus went up to heaven. *"He left them and was taken up into heaven."* He told his disciples to carry on his teachings, *"Go and make disciples of many nations, baptising them in the name of the father, Son and Holy Spirit"*. The significance for Christians today is it shows the power of good over evil and that they can be resurrected and therefore shouldn't fear death. God will forgive sins and they can become closer to God. The holy spirit will be there to guide and comfort. The resurrection gives the point to the Christian faith.

The afterlife and judgement

Christians believe there is another life. Christians believe that they have eternal life but what happens to them depends on their belief in God. Judgement will happen at death or at the day of judgement. The Apostles creed says, *"…he will come to judge the living and the dead…"* The parable of the sheep and Goats shows how people will be judged by God. The sheep are the good and the goats the bad, going to heaven and hell. Jesus also said, *"I am the way the truth and the life, no-one comes to the Father expect through me."*
Treating others well and believing in God is important to guarantee a good afterlife.

Sin and Salvation

Sin separates humans from God, this can be anything that goes against God or his laws. As humans are not perfect it is impossible not to sin. Christians believe that all are born with sin in them known as Original sin. This is due to Adam an Eve disobeying God and eating the fruit from the tree of knowledge. This action separated humans from God and brought about death into the world. They were tempted by the serpent (devil) and Christians believe that Christians are tempted in life to do bad things. Christians have freewill however they should use this to make the right choices using God and Jesus' teachings to guide them, e.g. The Ten Commandments. Salvation means to be saved from Sin and its consequences, e.g. going to hell. Sin separates us from God and salvation saves us from this. This salvation comes through faith in God and Grace through faith in Jesus.

The role of Christ in Salvation

Salvation is offered through Jesus, *"For the wages of sin is death, but the gift of God is eternal life in Christ Jesus"*. Jesus' death makes up for original sin. Humans can receive forgiveness for their sins because of Jesus' death and then receive eternal life. His sacrifice provides atonement, which means our relationship with God is restored. This removes the effects of sin and allows humans to get back to God. *"He is the atoning sacrifice for our sins and for the sins of the whole world"*. Jesus paid the price for the sin of all mankind through his death and Christians believe if you put your trust in him you can receive eternal life with God. Salvation is a gift you must choose through belief in Jesus and following his teachings.

Science - Chemistry

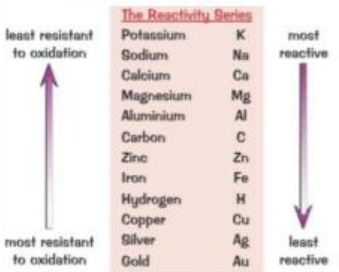
EDEXCEL 9-1 Combined Science | **Chemistry Topic 4 – Extracting Metals and Equilibria** | Required Knowledge — **CGP F & H tier: pages 114 - 117**

Oxidisation (Pg 114)
- A reaction involving oxygen.
- **Oxidisation** is the addition of oxygen, **reduction** is the loss of oxygen.

E.g. $Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$

- Iron oxide is reduced to iron (as oxygen is removed).
- Carbon monoxide is oxidised to carbon dioxide (as oxygen is added).

Reactivity (Pg 114)
- Shows how easily metals are oxidised.
- A reactivity series shows metals in order of reactivity.



- Also a measurement of saying how easily a metal atom gives up electrons to become an ion.
- More reactive = gives up electrons more easily.

Oxidisation & reduction (Pg 116)
- **Oxidisation** is also the **loss** of **electrons**.
- **Reduction** is the **gain** of **electrons**.

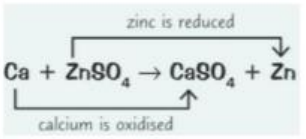
O I L R I G

When dealing with electrons: Oxidation Is Loss, Reduction Is Gain.

Metal reactions (Pg 115)
- Metals with different reactivity react to acids and water in different ways:

Metal	Reaction with water	Reaction with dilute acid	Tendency of metal atoms to form cations
potassium	react with cold water to form hydrogen and a metal hydroxide	react violently	increasing ability of metal atoms to form positive ions
sodium			
calcium		react to form hydrogen and a salt solution	
magnesium	react very slowly, if at all, with cold water but react with steam to form hydrogen and a metal oxide		
aluminium			
zinc			
iron			
copper	do not react with cold water or steam	do not react	
silver			
gold			

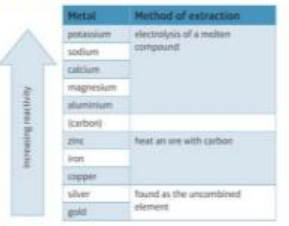
Displacement reactions (Pg 116)
- Metals differently with metals salts, depending on the reactivity of the metals.
- The more reactive element takes the place of the less reactive element.
- The more reactive metal loses electrons (is oxidised) while the more reactive metals gains electrons (is reduced).
- Remember OILRIG.



- Calcium is more reactive than zinc, and takes it's place in the metals salt to become calcium sulfate leaving pure zinc on it's own.

Ore (Pg 117)
- A rock containing enough metal in in to make it **economically worthwhile** to extract the metal.

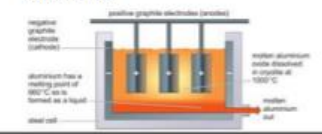
Metal extraction (Pg 117)
- Unreactive metals, e.g. gold, removed from the Earth's crust in pure form.
- More reactive metals form metals compounds, e.g. bauxite (aluminium oxide) the source of aluminium.
- The method for extracting metals from ores depends on the reactivity of the metal.



Method 1: Reduction with carbon (Pg 117)
- The ore is reduced, the carbon replacing the less reactive metals, leaving pure metals behind.
- Iron oxide (haematite) is the source of pure iron.

$2Fe_2O_3$ (iron oxide) + $3C$ (carbon) → $4Fe$ (iron) + $3CO_2$ (carbon dioxide)

Method 2: Electrolysis (Pg 118)
- The ore is melted and an electrical current passed through it. The pure metal forms on the negative electrode.



Method 3: Biological methods (Pg 118)
- **Bioleaching** uses bacteria grown on copper ore which produce a solution containing the metals ions.
- The copper is extracted by reduction with iron and purified by electrolysis.
- **Phytoextraction** uses plants that grow and absorb the metal compounds. When burned they form an ash which the metal can be extracted from.
- Advantages/disadvantages:

Process	Advantages	Disadvantages
both bioleaching and phytoextraction	no harmful gases (e.g. sulfur dioxide) are produced	very slow
	causes less damage to the landscape than mining	
	conserves supplies of higher grade ores	
bioleaching	does not require high temperatures	toxic substances and sulfuric acid can be produced by the process, and damage the environment
phytoextraction	can extract metals from contaminated soils	more expensive than mining some ores
		growing plants is dependent on weather conditions

Recycling (Pg 119)
- Reusing materials already extracted from the Earth is cheaper and has environmental benefits.
- Recycling aluminium cans is 95% more energy efficient per tonne over extracting it from ore.
- Prevents environmental damage from further mining
- Prevents landfill of cans.

EDEXCEL 9-1 Combined Science | **Chemistry Topic 4 – Extracting Metals and Equilibria** | Required Knowledge — **CGP F & H tier: pages 118 -120**

Life cycle assessments
- New planned products are assessed using and LCA.
- Each aspect is considered to see if it impacts the environment too significantly.

Example: **Car B** is the most logical choice to manufacture based on the statistics considered...

Car	CO_2 emissions (tonnes)	Waste solid produced (kg)	Water used (m^3)	Expected lifespan of product (years)
A	17	10 720	8.2	11
B	21	5900	6.0	17
C	34	15 010	9.5	12

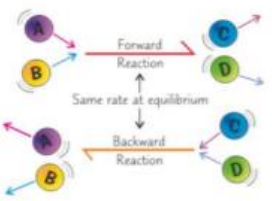
- Least solid waste and water used.
- Second best for CO2 emissions
- Longest lifespan

Reversible reactions
- Reactions where products can react to form the original reactants.
- Reactions go **both** ways!

$$A + B \rightleftharpoons C + D$$

- Note the arrow points in both directions, showing this is a reversible reaction.

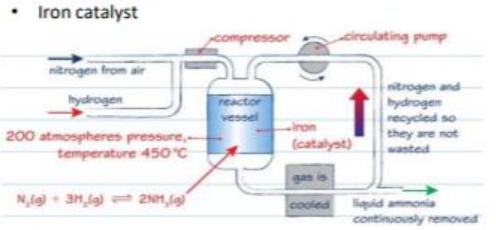
Dynamic Equilibrium
- In a closed system, reversible reactions reach **dynamic equilibrium**.
- This means the rate of the forward reaction is equal to the rate of the backwards reaction.



- The dynamic bit means that these reactions do NOT stop, products are formed from reactants and reactants react to form products...it just means the concentrations of the reactants and products does not change.

Factors effecting the equilibrium position
- Different factors can be used to shift the position of the equilibrium point...either to produce more product or more reactants.
- The factors are **temperature**, **pressure** (for reactions involving gasses) and **concentration** (of the reactants and products).

The Haber process
- Reaction between hydrogen and nitrogen to form ammonia.
- You need to remember the conditions for the process...
  - Pressure of 200 atmospheres
  - Temp of 450 °C
  - Iron catalyst



Le Chatelier's Principle
- The principle states, any change to either temp, pressure or concentration in a reversible reaction and the equilibrium position will move to counteract that change.
- This means we can adjust these factors to get more product or more reactant, if that's what is needed.
- Details of how each change effects the reaction can be found below, using the Haber process as an example.

TEMPERATURE All reactions are exothermic in one direction and endothermic in the other (see page 134).

1) If you decrease the temperature, the equilibrium will move in the exothermic direction to produce more heat.
2) If you increase the temperature, the equilibrium will move in the endothermic direction to absorb the extra heat.

PRESSURE Changing this only affects equilibria involving gases.

1) If you increase the pressure, the equilibrium will move towards the side that has fewer moles of gas to reduce pressure.
2) If you decrease the pressure, the equilibrium will move towards the side that has more moles of gas to increase pressure.

CONCENTRATION

1) If you increase the concentration of the reactants, the equilibrium will move to the right to use up the reactants (making more products).
2) If you increase the concentration of the products, the equilibrium will move to the left to use up the products (making more reactants).
3) Decreasing the concentration will have the opposite effect.

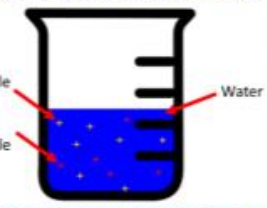
Science – Chemistry

EDEXCEL 9-1 Combined Science | **Chemistry Topic 3 – Chemical Changes** | Required Knowledge | **CGP F & H tier: pages 104 - 108**

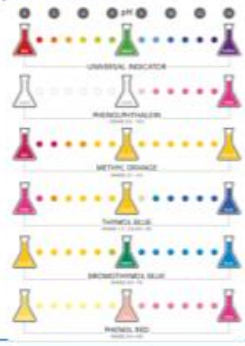
Acids (p):
- **Source of hydrogen ions (H^+) when in solution.**
- pH 1 – pH 6 (neutral = pH 7)
- Strong acids are corrosive and can be harmful to humans.
- Examples: Vinegar; citrus fruits; bee stings.

Alkalis & bases (p): pH 8 – pH 14.
- **Alkalis are sources of hydroxide ions (OH^-) when in solution.**
- Bases are any substances that react with acids to form salt and water only.
- All alkalis are soluble bases.
- Examples: Wasp stings; bleach; indigestion tablets; toothpaste.

Acid strength (p):
- The pH scale shows the strength of an acid (or alkali).
- The strength of an acid is determined by the proportion of ions which dissociate (split) in solution, e.g. $HCl \rightarrow H^+ + Cl^-$.
- Strong acids: High proportion of dissociated ions.
- Weak acids: Low proportion of dissociated ions.



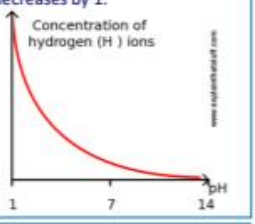
Indicators (p): Different chemicals can be used to test the pH of solutions.



pH scale (p): A measure of the proportion of hydrogen ions or hydroxide ions in a solution.

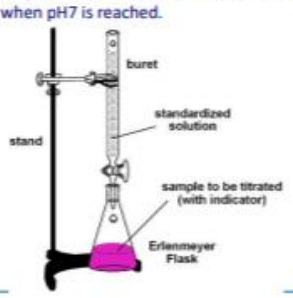
Increasing concentration of hydrogen ions — Increasing concentration of hydroxide ions

As hydrogen ion concentration increases 10x, pH of the solution decreases by 1.



Acid concentration (p):
- Acids are sources of hydrogen ions when in solution.
- The concentration of the solution is determined by the amount of acid dissolved in a volume of solvent.
- Measured in moles (e.g. 1M, 2M).
- Concentrated acid: Large amount of acid per litre of solvent.
- Dilute acid: Small amount of acid per litre of solvent.

Soluble salts & titration (p):
- When a neutralisation reaction produces a soluble salt, it can be extracted by crystallization (evaporating the solvent).
- To create a neutral product (pH7), exactly the right amount of acid and alkali must be used.
- **Titration** measures exact amounts of acid added to an alkali.
- Single-colour indicators show clearly when pH7 is reached.



Neutralisation (p): Chemical reaction between acid (pH1-6) and alkali (pH8-14) produces a salt and water (neutral at pH7).
- Neutralisation happens because of reactions due to ionic charges of atoms.
- Acids and alkalis dissociate (split) into ions (charged atoms) in solution.
  - Hydrochloric acid: $HCl \rightarrow H^+ + Cl^-$
  - Sodium hydroxide (alkali): $NaOH \rightarrow Na^+ + OH^-$
- The hydrogen and hydroxide ions react to form water: $H^+ + OH^- \rightarrow H_2O$
- The sodium and chlorine atoms react to form sodium chloride (salt): $Na^+ + Cl^- \rightarrow NaCl$

Acids & metals (p): **Acid + metal → salt + hydrogen**
- Evidence: Effervescence, or the production of hydrogen bubbles. Testing with a lit splint should produce a squeaky pop.
- Strength of reaction depends on metal's place in reactivity series.
- Magnesium + sulfuric acid → magnesium sulfate + hydrogen
- $Mg\ (s) + H_2SO_4\ (aq) \rightarrow MgSO_4\ (aq) + H_2(g)$

Acids & carbonates (p): **Acid + metal carbonate → salt + water + carbon dioxide**
- Evidence: Bubbling the carbon dioxide through limewater will turn the limewater cloudy.
- E.g.: Copper carbonate + sulfuric acid → copper sulfate + water + carbon dioxide
- $CuCO_3(s) + H_2SO_4(aq) \rightarrow CuSO_4(aq) + H_2O(l) + CO_2(g)$

EDEXCEL 9-1 Combined Science | **Chemistry Topic 3 – Chemical Changes** | Required Knowledge | **CGP F & H tier: pages 109 -112**

Insoluble salts & precipitates (p):
- Some salts produced by an acid-alkali reaction are not soluble – they do not dissolve in any solvents.
- These are called precipitation reactions, as they cause precipitate to form.
- Precipitate is insoluble particles of solid which form in the solvent.
- Preparation of insoluble salts:
  1. Mix the two solutions;
  2. Filter the mixture to remove most of the precipitate;
  3. Rinse the beaker with distilled water and pass this through the filter to retain any remaining precipitate.

Soluble	Insoluble
All nitrates	None
Most sulfates	Lead sulfate, barium sulfate and calcium sulfate
Most chlorides, bromides and iodides	Silver chloride, silver bromide, silver iodide, lead chloride, lead bromide, lead iodide
Sodium carbonate, potassium carbonate, ammonium carbonate	Most other carbonates
Sodium hydroxide, potassium hydroxide, ammonium hydroxide	Most other hydroxides

State symbol **(s)** indicates a precipitate. Example: reaction of limewater with carbon dioxide:

Calcium hydroxide (limewater) + carbon dioxide → calcium carbonate + water

$Ca(OH)_2(aq) + CO_2(g) \rightarrow CaCO_3(s) + H_2O(l)$

H - Ionic equations (p):
- All salts are ionically bonded.
- Ionic equations show only the ions which change.
- For example:
  - Lead nitrate + sodium chloride → lead chloride + sodium nitrate
- Full equation: $Pb(NO_3)_2(aq) + 2NaCl(aq) \rightarrow PbCl_2(s) + 2NaNO_3\ (aq)$
- **Ionic equation: $Pb^{2+}(aq) + 2Cl^- \rightarrow PbCl_2(s)$**
- All ions which do not change are called **spectator ions**.

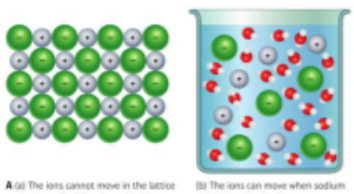
Acids & metal oxides / metal hydroxides (p):
- **Metal oxide + acid → salt + water**
- E.g.: Copper (II) oxide + hydrochloric acid → copper chloride + water

$CuO + 2HCl \rightarrow CuCl_2 + H_2O$

- Metal hydroxide + acid → salt + water
- E.g.: Calcium hydroxide + nitric acid → calcium nitrate + water

$Ca(OH)_2 + 2HNO_3 \rightarrow Ca(NO_3)_2 + 2H_2O$

Ions & electrolytes (p):
- Atoms which have lost or gained electrons.
- Charged (positive or negative).
- Ionic solids dissolve into free ions in water.
- Any liquid with free ions in solution is called an **electrolyte**.
- Electrolytes can conduct electricity.



A (a) The ions cannot move in the lattice structure of solid sodium chloride. (b) The ions can move when sodium chloride is dissolved in water.

Electrolysis (p):
- Means of separating out ionically-bonded compounds.
- Negative ions collect at the anode (positive electrode).
- Positive ions collect at the cathode (negative electrode).

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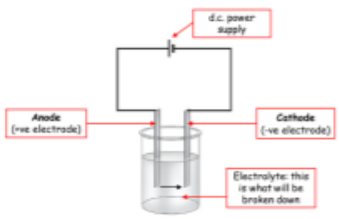
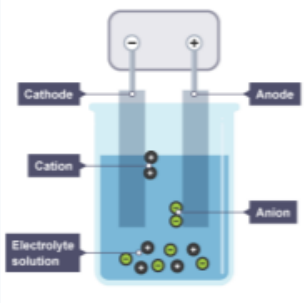


Negative ion	Element given off at anode
Chloride, Cl^-	Chlorine, Cl_2
Bromide, Br^-	Bromine, Br_2
Iodide, I^-	Iodine, I_2
Sulfate, SO_4^{2-}	Oxygen, O_2

H – Reactions at electrodes (p):
- **OIL RIG**: **O**xidation **I**s **L**oss, **R**eduction **I**s **G**ain.
- At the anode, negative ions lose electrons (oxidation).
- At the cathode, positive ions gain electrons (reduction).
- Example:
  - Zinc chloride electrolyte
  - Cathode reaction: $Zn^{2+} + 2e^- \rightarrow Zn$
  - Anode reaction: $2Cl^- \rightarrow Cl_2 + 2e^-$

Naming salts (p):

Acid	*Salt formed*
Hydrochloric Acid →	Chloride
Sulfuric Acid →	Sulfate
Nitric Acid →	Nitrate



$H_2O \rightleftharpoons H^+ + OH^-$

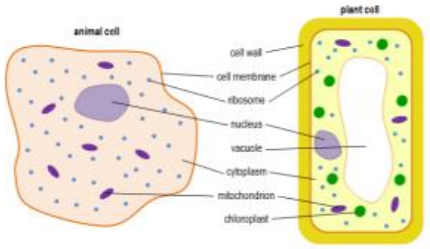
State symbols (p):
- In chemical equations, state symbols can be included after every chemical to show the state (solid, liquid, gas) of the chemical.
- **(s)** = solid
- **(l)** = liquid
- **(g)** = gas
- **(aq)** = in solution / dissolved.

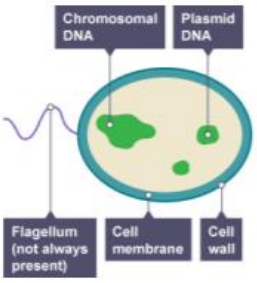
Science – Biology

EDEXCEL 9-1 Combined Science| **Biology Topic 1 – Key Concepts**| Required Knowledge **CPG F & H tier: pages 11-14.**

Cell Structure

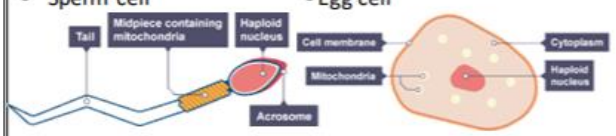
- Animal cell
- Plant cell
- Bacterial cell



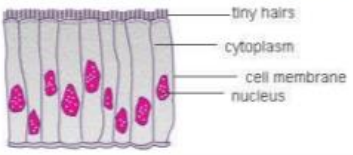


Specialised cells

- Sperm cell
- Egg cell

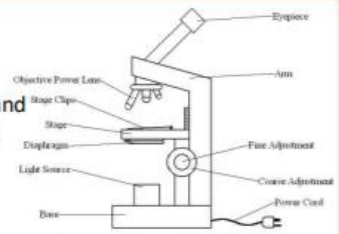


- Ciliated cell



Making Microscope Slides

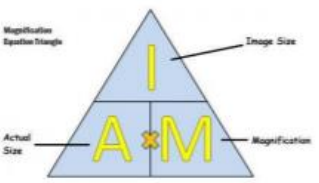
1. Take a thin slice of specimen
(to let light through)
2. Put a drop of water on a slide and use tweezers to add the specimen
(water holds it in place)
3. Add a drop of stain
(makes it easier to see)
4. Use a mounted needled to lower a cover slip and press down firmly
(so there are no bubbles)
5. Put the slide on the stage and secure using the clips
6. Choose the lowest powered objective lens
7. Use the coarse focusing knob to move the stage up and down while looking through the eyepiece
(to focus the image)
8. Adjust the focus using the fine adjustment knob
9. Put a clear ruler on the state to measure the diameter of your field of view
(this will allow you to estimate the size of the specimen)
10. Repeat focusing with higher-powered objective lens if needed



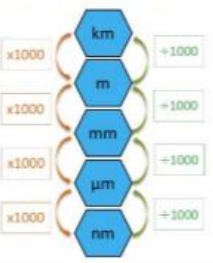
Magnification

- Equation

Magnification = image size ÷ actual size



- Unit conversion

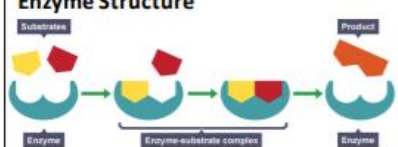


Light vs. Electron Microscopes

Light microscope	Electron microscope
Inexpensive to purchase and operate	Expensive to purchase and operate
Simple and easy specimen preparation	Complex and lengthy specimen preparation
Magnifies up to 2000×	Magnifies over 500 000×
Specimens may be living or dead	Specimens are dead, and must be fixed in a plastic material

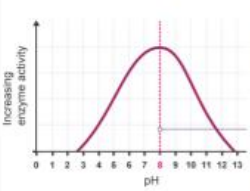
EDEXCEL 9-1 Combined Science| **Biology Topic 1 – Key Concepts**| Required Knowledge **CPG F & H tier: pages 15-17.**

Enzyme Structure

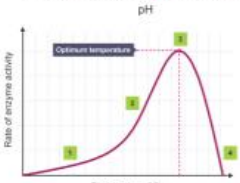


Enzymes speed up chemical reactions where things are split apart or joined together. Enzymes only work with one substrate, they have a high specificity due to the shape of the active site. The substrate's shape has to match the active site's shape exactly. This is called the 'lock and key' model.

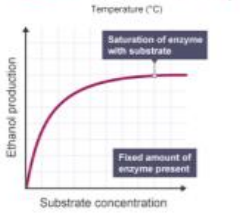
Factors affecting enzymes



As the enzyme experiences conditions away from the optimum the shape of the active site begins to change meaning the substrate can't fit as well and less reactions will occur.



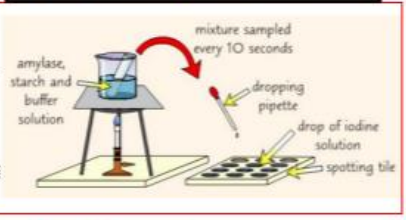
As the enzyme experiences warmer conditions it (and the substrate) will move more quickly, there will be more collisions and more reactions. After the optimum the heat causes the shape of the active site to change in the same way as pH.



As more substrate is added the more collisions there will be with available enzymes and more reactions, up until a certain (saturation point), where all of the enzymes are already working at their maximum rate.

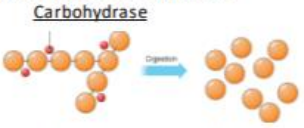
Investigating Enzymes

The enzyme amylase catalyses the break down of the starch into maltose (sugar). The enzyme is added to buffer solutions of different pHs. The time it takes for the enzyme to work is calculated by continuously sampling the mixture and adding it to iodine. Only when all of the starch has been broken down will the iodine stop changing colour. Calculation needed: Rate = 1 ÷ time taken.



Specific digestive enzymes

Carbohydrase



Starch → Glucose

Protease

Protein → Amino acids

Lipase

Lipids → Fatty acids + glycerol

All of these digestive processes can happen in reverse = synthesis.

Investigating Osmosis

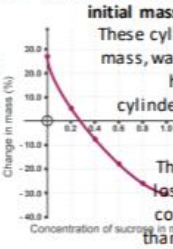
1. Prepare sucrose solutions of 5 concentrations
2. Measure the mass of potato cylinders
3. Put one cylinder into a test tube of each solution
4. Leave for 40 mins
5. Pat dry and reweigh

Results

Calculate percentage change in mass.

Percentage change = final mass – initial mass x100
initial mass

The point where the line crosses the x-axis means the concentration inside and outside of the potato cylinder were the same.



These cylinders gained mass, water conc. was higher than in cylinders, water was drawn in

These cylinders lost mass, water conc. was lower than in cylinders, water was drawn out

Transport

Diffusion

Movement of particles from high concentration to low concentration e.g. carbon dioxide into plant leaves

Osmosis

Movement of water particles across a partially permeable membrane from high water concentration to low water concentration e.g. water into plant roots

Active Transport

Movement of particles across a membrane from high concentration to lower concentration, using energy transferred during respiration e.g. nitrates into plant roots

9.10 Leisure and heathy living vocabulary list

Las actividades	activities
ir	to go
jugar	to play
comer	to eat
visitar	to visit
hacer	to do
bailar	to dance
beber	to drink
ver	to watch
escuchar	to listen
leer	to read
comprar	to buy
terminar	to finish
mirar	to see
escribir	to write
dormir	to sleep
nadar	to swim
quedar	to meet
viajar	to travel
cantar	to sing
Mandar SMS	to text
contactar	to contact
Llamar	to call
cocinar	to cook
descargar	to download
trabajar	to work
ayudar	to help
mediar	to meditate
relajar	to relax
descansar	to rest

Sitios	Places
En casa	At home
En la casa de mi amigo	At my friend's house
En la casa de mi padre	At my dad's
En la casa de mi madre	At my mum's
En la casa de mis abuelos	At my grand-parents'
En mi dormitorio	In my room
En el salón	In the living room
En el jardín	In the garden
En mi barrio	In my neighbourhood
En Inglaterra	In England
En el extranjero	Abroad
En el pueblo	In town
En el campo	In the countryside
En las montañas	In the mountains
En la costa	By the seaside

La gente	People
Con	With
Mis amigos	My friends
Mi hermano	My brother
Mi hermana	My sister
Mis padres	My parents
Mi familia	My family
Solo/a	Alone

Intensifiers

muy – very	demasiado – too
tan– so	realmente – really
bastante – quite	extremamente – extremely
Un poco – a bit	nada - not at all

Adjetivos	Adjectives
Amable	Kind
Agradable	Pleasant
Contento/a	Happy
Hablador/a	Chatty
Bonito/a	Beautiful
Divertido/a	Fun
Mono/a	Cute
Guapo/a	Pretty
Limpio/a	Clean
Perfecto/a	Perfect
Rapido/a	Fast
Rico/a	Rich
Sabio/a	Wise
Timido/a	Shy
Trabajador/a	Hard working
Triste	Sad
Aburrido/a	Boring
Molesto/a	Annoying
Serio/a	Serious
Fácil	Easy
Difficil	Difficult
Estricto/a	Strict
Feo/a	Ugly
Ruidoso/a	Noisy
Maleducado/a	Rude
Horrible	Horrible/Awful
Vago/a	Lazy
Glotón	Greedy
Deportivo/a	Sporty
Enriquzedor/a	Enriching
Interesante	Interesting
Viejo/a	Old
Relajante	Relaxing

Healthy living key verbs	
acostarse	to go to bed
apetecer	to fancy, to feel like
conseguir (un trabajo)	to get (a job)
correr	to run
drogarse	to take drugs
emborracharse	to get drunk
encontrarse bien/mal	to feel well/ill
estar a dieta	to be on a diet
estar en forma	to be fit
evitar	to avoid
fumar	to smoke
intentar (+ infinitive)	to try to
levantarse	to get up
mantenerse en forma	to keep fit
preocupar	to worry
probar	to try, to taste,
sentirse	to feel
superar	to overcome
tener dolor (de)	to have a pain (in)
tener sueño	to feel sleepy

Cabot Learning Federation

Spanish

9.10 Leisure and heathy living

3 time frames
Infinitives
Time phrases

opinions
justifications
describing and comparing

Verbs and the present tense in Spanish

The infinitive

When you look up a verb in the dictionary, you find its original, unchanged form which is called the ***infinitive*** (comer, beber, jugar, visitar, vivir, ir etc.). The infinitive ends in **–ar**, **-er** or **–ir.**

Forming the present tense in Spanish

Take off the last 2 letters of the infinitive (**–ar**, **-er** or **–ir)** and add the following endings depending on the pronoun:
*Important! There are some key irregulars to learn which don't follow this pattern – ir (as shown here), ser, tener and hacer are really important!

	AR verb	ER verb	IR verb
yo (I)	-o	-o	-o
tu (you)	-as	-es	-es
él/ella (he/she)	-a	-e	-e
nosotros/as (we)	-amos	-emos	-imos
vosotros/as (you all)	-áis	-éis	- ís
ellos/ellas (they)	-an	-en	-en

Verbs and the near future tense in Spanish

You can talk about the future by using the **near future** tense.
Use part of the verb IR + a + the infinitive to say what you are **going** to do.

Este tarde **voy a jugar** al tenis. *This evening I am going to play tennis.*
Mañana Paul **va a hacer** un pastel. *Tomorrow Paul is going to make a cake.*

IR (to go)	
voy	I am going
vas	You are going
va	He /she/one is going
vamos	We are going
vais	You (lot) are going
Van	They are going

Verbs and the past tense in Spanish

The **preterite** is the past tense used in Spanish to describe a completed action at a specific time in the past (e.g. ayer (yesterday), el año pasado (last year)). For regular we take off –ar, -er – ir and add the below endings :

	-AR	-ER / -IR
I	é	í
You (sg)	aste	iste
He/she/it	ó	ió
We	amos	imos
You (pl)	asteis	isteis
They	aron	ieron

Examples:

Tomar = to take
To form " I took"

TOMAR > tom > tomé

Hablar = to speak
To form "she spoke"

HABLAR > habl > habló

9.10 Leisure and heathy living

3 time frames
Infinitives
Time phrases

opinions
justifications

1.Expressing FUTURE intentions :
Tengo la intención de + infinitive (I plan to/ I intend to …)
Me gustaría + infinitive (I would like to…)

2.Using infinitives after me gusta/no me gusta/odiar/preferir :
You can also use an infinitive after opinion verbs such as aimer, odiar and preferir. They are usually translated with a **gerund** (a verb ending with -ing) in English:
Me gusta *vivir* à Newcastle - I like living in Newcastle.
Prefieres *jugar* al fútbol o al tenis? - Do you prefer playing football or tennis?
Odio *beber* café porque es asqueroso – She hates drinking coffee because it's disgusting.

3.Opinions
Me gusta(n) - I like
Me gusta(n) **mucho** - I like **a lot**
No me gusta(n) **mucho** - I don't like **much**
Prefiero – I prefer
Odio - I hate
No suporto - I can't stand

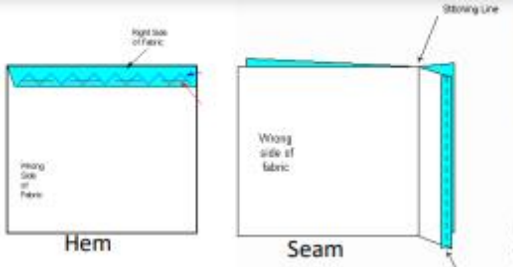
4.Justification
Porque - because
Por lo tanto – therefore/so
Por consiguiente- consequently

5.Comparisons
Más…..que –more…than
Menos…que - less…than
Tan…como – as…as

6.Superlative
El/la más – the most
El/la menos – the least
El/la major – the best
El/la peor – the worse

7.Time phrases
Normalmente - normally
Usualmente - usually
Generalmente - generally
De vez en cuando/a veces – sometimes
Luego – next
Raramente - rarely
El fin de semana que viene– next weekend
La semana que viene- next week
El fin de semana pasado - last weekend
El mes pasado - last month
El verano pasado- last summer
Durante la cuarentena- during lockdown

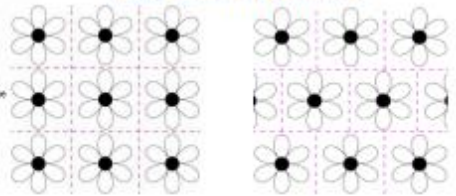
Year 9 Textiles Knowledge Organiser



What is the difference between a hem and a seam?

A hem is a neat non fraying edge made by folding fabric over and stitching it down. A seam is a line along which pieces of cloth are joined by sewing.

The motif has been repeated to make two different patterns



plain repeat pattern

brick repeat pattern/ offset repeat pattern

Equipment	Use
Bobbin 	A bobbin is a cylinder, to which cotton thread is wrapped around. It is found in the bottom part of a sewing machine.
Overlocker machine 	An overlocker does not replace a sewing machine. Its primary function is to clean finish a raw edge, giving the project a professional appearance
Quick unpick 	It is used to quickly remove stitches and seams.
Tailor's chalk 	Used to mark on to fabric. It is easily washed off.
Measuring Tape 	It is a flexible ruler that can be used for body measurements, tailoring and dressmaking. It is flexible to measure fabric and curves of the body.

About Designers

Orla Kiely

Orla Kiely is known for her print designs inspired by her early childhood – the colours of the countryside and her home.

Kiely's design work lends itself to CAD for its repetitive style. Her original work was hand painted using gouache paint. 'Stem' is her most iconic print which consists of simple graphic strength – clean, measured and bold.

Kiely believes her work is never finished and can be re-worked several times until she is satisfied with the end result.

Laura Ashley

Print has been at the forefront of the Laura Ashley brand since it was first established when Laura Ashley started printing her own designs for head scarves.

She went on to design dresses for social wear at the end of the 1960s. Her popular long Victorian-inspired dresses became known as the 'Laura Ashley look'.

The business expanded into coordinated ranges of furnishing fabrics using natural materials such as cotton and recycled paper for wallpaper.

Textiles Hierarchy of Key words

Tier 3 'Academic' keywords.

Plain seam, analyse, sustainable, embellishment, Woven/ bonded/ knitted, Free machine embroidery, function, develop

Tier 2 Valuable keywords used in most lessons every lesson.

Complementary colours, contrast, environment, fastening, compare, embroidery, equipment, iron, context, appliqué, effect, improve

Tier 1 Basic keywords used in almost every lesson.

colour, design, shape, machine, pattern, line, Texture, tone, theme, Fabric, thread, sew

Questions and activities – hints and tips

Summarising a lesson:

Answer the following questions to help you summarise your learning in a lesson. This will help you recap and think again about your learning, and will be useful to look back on in the future.

- What key words did you use in the lesson?
- Can you define those key words and use them in a sentence?
- What new content did you cover?
- How does this link to your previous learning?
- Can you summarise your learning into one sentence?

Revision:

If you have an MCQ approaching, you could create some revision material based on your knowledge organiser.

Can you get down the key information in a spider diagram?

Can you use diagrams, pictures, symbols etc to recall your knowledge?

Knowledge quizzes:

Create a set of questions using the information from your knowledge organiser, or from your lesson.

You could make them about key words, and maybe even give multiple choice answers.

Go over the questions you keep getting wrong.

Try the questions out with those at home, or maybe your teacher could use them for their starter quiz in class.

Keyword Development:

Practise the spellings of key words. Use the look-cover-write-check method to help you.

Can you explain what the key words mean?

Can you link the key words together?

Copy out the key words with their definitions.

What might it look like?

Geography — Thursday 1st October

Topic: Our Place in the World

Lesson Summary:

Longitude - the distance, in degrees, E or W of the Prime Meridian.

Latitude - the distance, in degrees, N or S of the Equator.

Today we learnt about how the world is divided up using lines of latitude + longitude. The Equator is an 0° latitude, and the poles are 90° N +S.

This links to our previous learning because now I can say where the continents are using longitude + latitude to find them on a map

Lesson summary:

Knowledge Quiz:

Science

Topic: Cells — Monday 28th September

Knowledge Quiz:

1.) What is the name of the part of the microscope where the specimen is placed?
A= Stage

2.) How many cells are there in a 'unicellular' organism?
A= one

3.) What does the 'cell membrane' do?
A= controls movement of substances in + out of the cell

4.) Where does photosynthesis take place in a cell?
A= Chloroplast

5.) What is the function of the red blood cells?
A= to carry oxygen

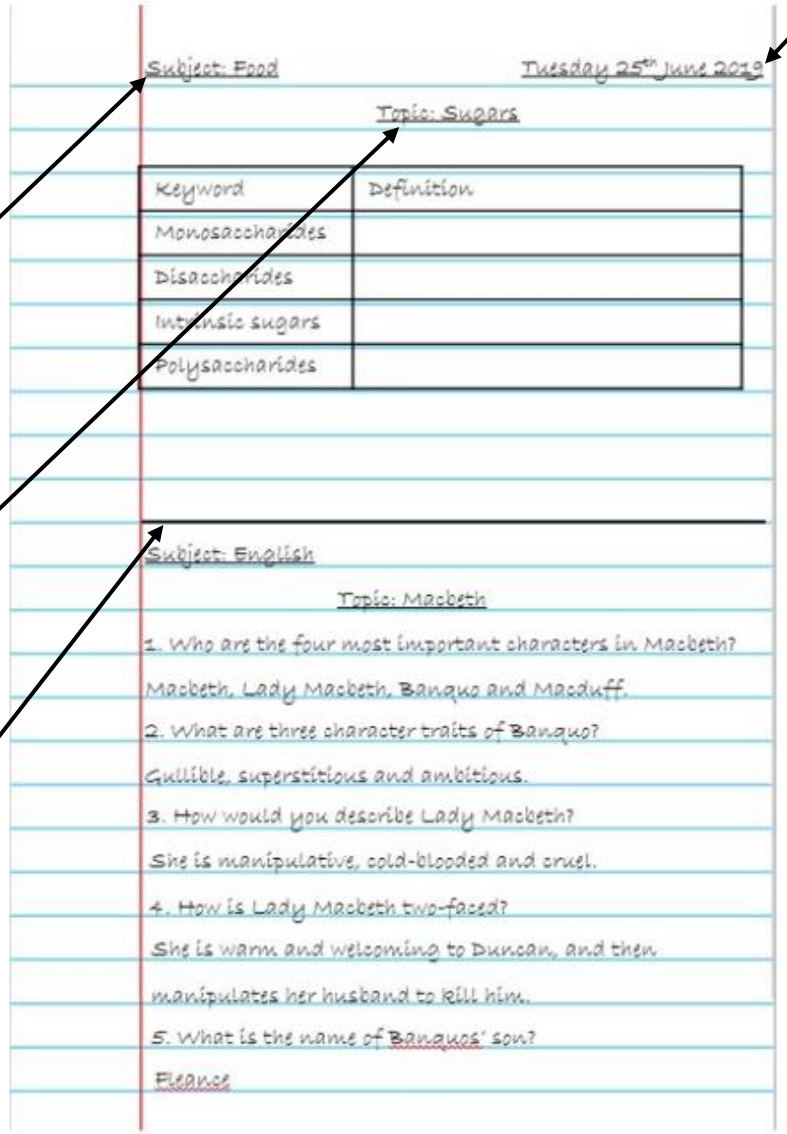
How to present your homework:

Date written fully on the right hand side of the page and underlined – this should be the day you complete the homework.

Subject written on the left-hand side of the page and underlined.
For example: Food

Topic written on the centre of the page and underlined.
For example: Sugars

One single straight line between both pieces of homework.



Subject: Food — Tuesday 25th June 2019

Topic: Sugars

Keyword	Definition
Monosaccharides	
Disaccharides	
Intrinsic sugars	
Polysaccharides	

Subject: English

Topic: Macbeth

1. Who are the four most important characters in Macbeth?

Macbeth, Lady Macbeth, Banquo and Macduff.

2. What are three character traits of Banquo?

Gullible, superstitious and ambitious.

3. How would you describe Lady Macbeth?

She is manipulative, cold-blooded and cruel.

4. How is Lady Macbeth two-faced?

She is warm and welcoming to Duncan, and then manipulates her husband to kill him.

5. What is the name of Banquos' son?

Fleance

Notes