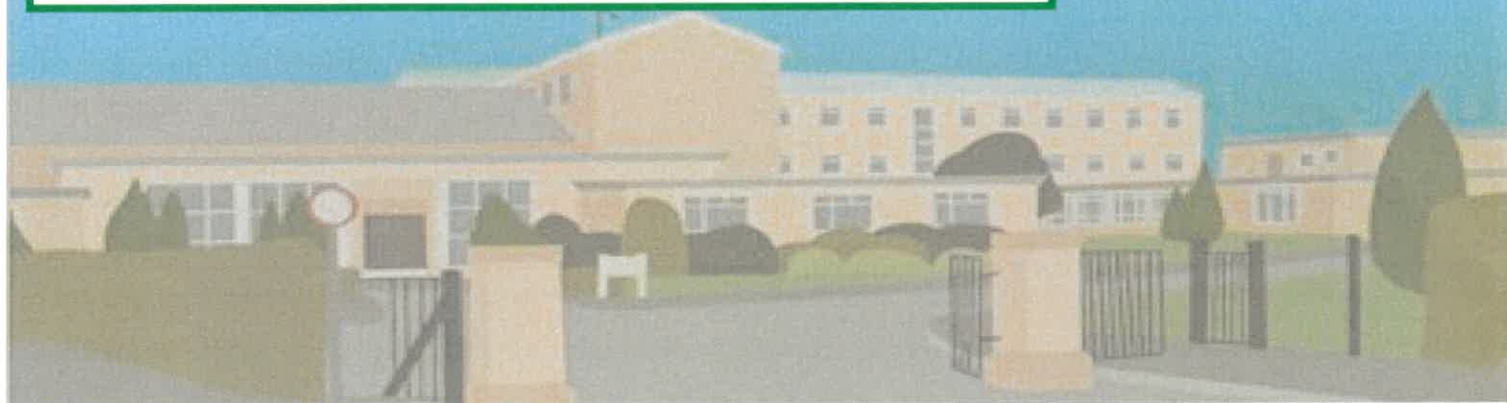


Name and Tutor group:

THE
CORSHAM
SCHOOL



Year 10 Knowledge Organiser

Term 3

CORSHAM CHARACTER

INTELLECTUAL VALUES

The pursuit of truth,
knowledge and
understanding.

Be reflective. Be curious. Be
open-minded. Be creative.



PERFORMANCE VALUES

Maximum effort, maximum
focus.

Be resilient. Always Persevere.
Contribute to Teamwork.
Be ambitious.



DREAM BELIEVE ACHIEVE

Look, Cover,
Write, Check

Definitions to
key words

Flashcards

pictures

Stage 1

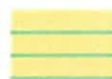
Look at & study an
area of your
knowledge organiser



Write down the key
words & definitions



Write key words,
dates/formulae,
equations/quotes on
one side & answers
on the other



Draw
pictures/diagrams/
cartoon strips



Stage 2

Cover up your
knowledge organiser
and write everything
you remember



Cover up the
definitions. How
many can you
remember? Repeat.



Include pictures or
diagrams if it helps.
Read through them.



Label your
pictures/diagrams/
cartoon strips



Stage 3

Check. Correct
mistakes in green
and add anything
you missed. Repeat



Check. Correct
mistakes in green
pen. Which ones do
you find hard to
remember?



Test yourself and get
someone to test you.



Explain out loud to
yourself or
family/friend what
your images show



Self quizzing

Mindmaps

Paired
retrieval

Speak, Cover,
Write, Check

Stage 1

Use your knowledge
organiser to create
quiz questions.



Create a mindmap of
everything you can
remember from your
knowledge organiser



Give a family
member/friend the
knowledge organiser
to hold



Read out loud the
information from the
knowledge organiser
several times.



Stage 2

Write down the
answers to your quiz



Check your
knowledge organiser
& use a green pen to
make any
corrections.



Get them to test you
using the knowledge
organiser



Cover up your
knowledge organiser
and write everything
you remember



Stage 3

Keep self-quizzing
until you get all the
answers correct



Add additional
information to your
mindmap or make
connections to other
knowledge



Write down your
answers to their
questions



Check. Correct
mistakes in green
and add anything
you missed.



Choose any of the following activities to complete your homework



LEARNINGSIENTISTS.ORG

LEARN TO STUDY USING ...

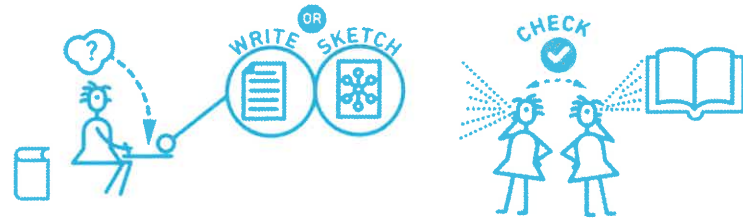
Retrieval Practice

PRACTICE BRINGING INFORMATION TO MIND



HOW TO DO IT

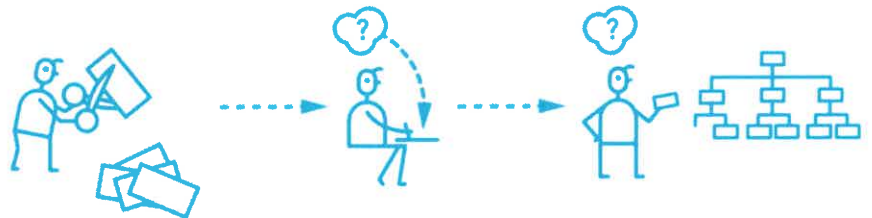
Put away your class materials, and write or sketch everything you know. Be as thorough as possible. Then, check your class materials for accuracy and important points you missed.



Take as many practice tests as you can get your hands on. If you don't have ready-made tests, try making your own and trading with a friend who has done the same.



You can also make flashcards. Just make sure you practice recalling the information on them, and go beyond definitions by thinking of links between ideas.



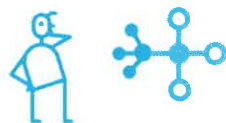
HOLD ON!



Retrieval practice works best when you go back to check your class materials for accuracy afterward.



Retrieval is hard! If you're struggling, identify the things you've missed from your class materials, and work your way up to recalling it on your own with the class materials closed.



Don't only recall words and definitions. Make sure to recall main ideas, how things are related or different from one another, and new examples.

RESEARCH

Read more about Roediger, H. L., Putnam, A. L., & Smith, M. A. (2011). Ten benefits of testing and their [retrieval practice](#)

applications to educational practice. In J. Mestre & B. Ross (Eds.), *Psychology of learning and motivation: Cognition in education*, (pp. 1-36). Oxford: Elsevier. [as a study strateg](#)

GCSE FINE ART

THE SURREAL AND SUBLIME



GRADE 9 COURSEWORK SKETCHBOOK

Assessment objective 1

Develop ideas through investigations informed by contextual and other sources, demonstrating analytical and cultural understanding.

- Mind-map to identify subthemes
- Research 3 artists' work who interest you and inspire your ideas
- Write research in your own words
- Copy examples of the artists' work

Artist Research

1. ARTIST NAME

On the page you should write down the artist's name. This could either be hand written in a suitable lettering or printed from the computer.

2. IMAGES

Print and stick down images of your artist's work. Make sure they are high quality and not pixelated.

3. ANALYSIS

For each artist you must analyse at least one piece of their work in depth. Use the Analysing Artists prompt sheets to guide you with what to write. This can either be NEATLY hand written or typed and printed.

4. STUDIES

Complete a study for each artist you research. This could be a copy/study of a section of the artists work OR your own interpretation in the style of the artists work. If you have time it would be beneficial to do both!

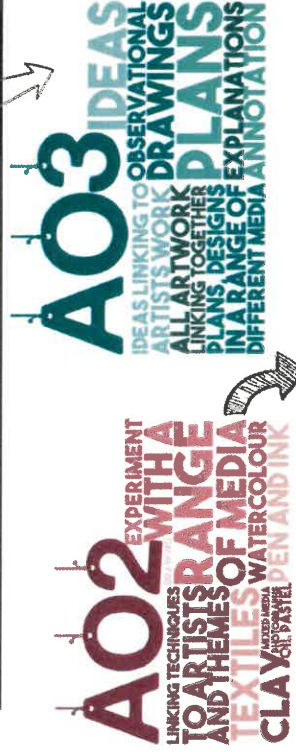


General information about the artist: who are they? When did they work? What media do they work in? Are they well known for their work, if so why? Are they part of a genre of art or movement? Is there anything significant about their life that might have inspired their work?

Assessment objective 3

Record ideas, observations and insights relevant to your intentions in visual and/or other forms.

- Take at least 30 photographs of your idea/subject
- Produce at least 8 studies from these photographs in different media
- *Idea:* Photocopy one of your drawings and use oil pastels over the top
- Link these studies to artists' styles and/or techniques
- Add notes/annotations to all of your studies



Assessment objective 2

Refine ideas through experimenting and selecting appropriate resources, media, materials, techniques and processes.

- Create 5 studies from secondary sources
- Create 5 studies from primary sources
- Use at least 3 different media

Surreal

- Digital distortion (*Francis Bacon*)
- Metamorphosis (*Andrea Matus*)
- Divide and colour (*Robert Delaunay*)
- Relief sculpture & lino print (*Louise Nevelson*)

Sublime

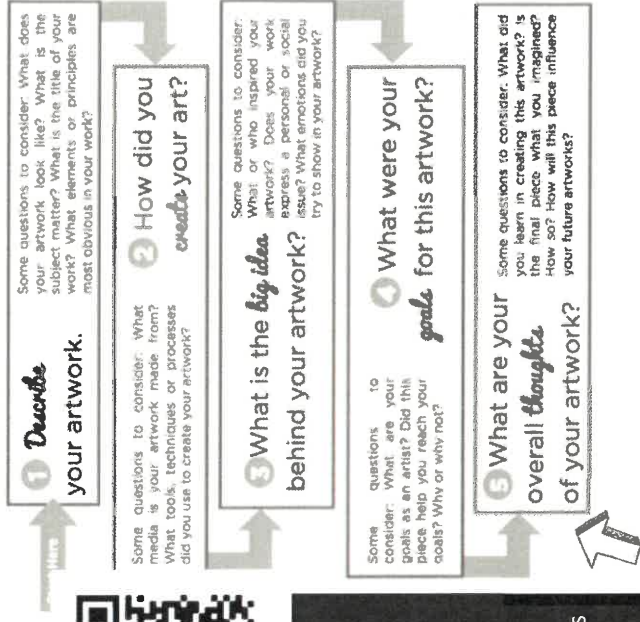
- Natural forms
- Rural and urban landscapes (*Ian Murphy & Kurt Jackson*)

Assessment objective 4

Present a personal, informed and meaningful response demonstrating analytical and critical understanding, realising intentions and, where appropriate, making connections between visual, written, oral or other elements.

- Show evidence for 2 different ideas of possible outcomes. Explain both ideas.
- Your final idea must link to an artists' work in some way.
- Create a final outcome using media you are confident with and it must show at least 10 hours worth of work.

Project overview



AO1

Assessment Objective 1

Annotations



AO1 is about developing ideas from a starting point to a final piece. This is done through A-mapping, sketches and studies related to the work of other artists, designers and craftspeople. You need to analyse and understand these contextual sources, and develop your ideas in a personal way.

You can begin to develop your ideas once you have collected your source materials. You might have some general concepts about what you want to do, but your ideas will change and develop as you investigate your source material. You'll need to do more research and find new source materials as your work develops.



Artist Research

Primary Drawings
Observations

AO3

Assessment Objective 3 is about recording your ideas, observations and insights, which can be in visual, written and other forms. You should work from a range of experiences and stimulus materials, as each of these could lead you to different ways of developing your ideas. You should reflect upon your work, and consider what you have achieved at each stage and what you will do next.



You need to demonstrate that you understand how artists and designers work, and relate this to the ideas that you record. This may be done using images, different media, sketches, diagrams and studies.

You should demonstrate connections between your own recordings and the work of other artists and designers by carefully organising these observations in your sketchbook.

AO2

Assessment Objective 2

Assessment Objective 2 is about refining your ideas through selecting and experimenting with appropriate resources, media, materials, techniques and processes. There are various ways of using these to develop ideas and create a personal response.

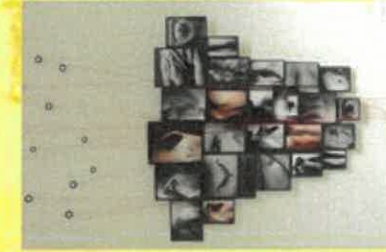
Experimenting with media



Cut, layer and experiment with photographs and papers.

Using artists' inspiration

Experiments, practical samples and studies in different media demonstrate that you have developed and communicated your ideas through practical investigation. This will equip you with a working vocabulary of resources, practical knowledge and technical skills and enable you to make an informed choice when selecting materials and approaches for your theme.



Assessment Objective 4 is about presenting a personal, informed and meaningful response, from your initial research through to the final piece. You need to demonstrate analytical and critical understanding as you respond to your theme. By practising your skills in using different media and processes you are able to develop the ways in which you convey your ideas and responses - your personal visual language.



You must show that you have understood the theme, and that you have an understanding of the way artists, designers or craftspeople work. You need to demonstrate this understanding in your research and development studies, as well as in your final piece.

AO4

Learning Outcome 1: Understand entrepreneurship, business organisation and the importance of stakeholders: Entrepreneur

1.1.1 Being an entrepreneur

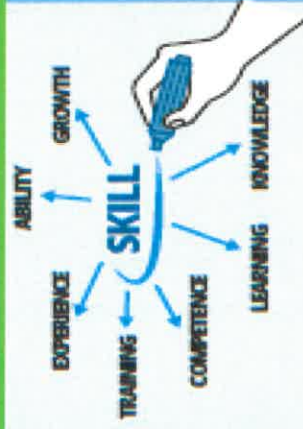
You will know and understand what it means to be an entrepreneur and what motivates them, including:

Definition of an entrepreneur

Entrepreneurial motivators – financial, personal, social

1.1.2 Entrepreneurial characteristics and skills

- Confident
- Motivated
- Determined
- Results focused
- Initiative
- Decision making
- Analytical ability
- Communication



Entrepreneur

Business Enterprise

Definition: The formation of a new business or development of a new good or service to be introduced to the market.

Famous entrepreneurs such as Richard Branson (Virgin), Bill Gates (Microsoft), Steve Jobs (Apple) and Lord Alan Sugar (Amstrad) are great examples of how one business idea can grow into a huge success with the help of the right entrepreneurial skills and characteristics.

Entrepreneur

Definition: A person who sets up a business by taking on the financial risks in the hope of making a profit.

They are responsible for bringing together the other factors of production, land, labour and capital, to create a business.

This involves:

- Initiative → Taking action
- Innovation → Idea for a new good or service
- Identifying opportunities → Spotting a gap in the market
- Organising resources → Planning and using a range of resources e.g. raising

The Motives of Entrepreneurs

Financial

- Generate a profit
- Provide employment for self
- Financial security for self and family

Non-financial

- Self satisfaction/challenge
- Be own boss
- Fill a gap in the market
- Create employment for others

Social/community

- Social enterprises are those whose prime objective is to do good in society rather than to make a profit
- Surplus revenue is used to support a specific cause e.g. a children's charity or community group

Business aims and objectives

Aims and Objectives

Aims: Is the long term objective of the business. Its aim might be to become the biggest business in its sector.

Aims should be SMART:

Aims should be SMART:



Specific - Measurable - Achievable - Realistic - Time Manageable

Objectives: Is a short or medium term target of a business needed to reach its aim. An objective might be to increase sales by 20% in the next 5 years.

Aims of For Profit /Financial :

1. Break even point
2. Profitability
3. Increasing revenue
4. Profit maximisation

Aims of Not-For Profit/non-financial:

1. Customer satisfaction
2. Expansion
3. Employee engagement/satisfaction
4. Diversification
5. Ethical/corporate responsibility

Business Legal structures

1.Sole Trader

Definition: Businesses owned by one person who has unlimited liability. Other people can be employed but there is only one owner.

Advantages:

- ✓ Profit → can keep all profit / no need to share
- ✓ Making decisions → without consulting others / will be speedy → e.g. of decision
- ✓ Own boss → free to choose / any example
- ✓ Independence → can work at own pace etc.
- ✓ Easy to set up → few formalities → therefore cheaper to set up
- ✓ Have a job → may not be able to find one elsewhere

Disadvantages:

- ✗ Unlimited liability → responsible for debts of the business
- ✗ More responsibility → relies heavily on their own ability to make decisions → may work long hours and have limited holidays, as there is no one to cover them
- ✗ Limited sources of resources

Unlimited Liability

Definition: Means that the owners of a business are responsible for all of the debts of a business. Personal belongings may need to be given up to pay the debts of the business.

2.Partnership

- This is a business which is owned by **two or more people**. These people all share the profits and responsibility for managing the business.
- When a partnership business is set up, it is a good idea to draw up a **deed of partnership**. This will be a written record of all of the agreed terms of the partnership (who does what, who owns what, etc) and can be very useful to resolve any disputes that may arise.
- Each partner is liable for their own debts as well as any partners' debts. As with sole traders, this liability is **unlimited**, meaning that the partners must take whatever action is required in order to cover the debts (such as selling possessions, using personal savings, etc)

3. Private limited company (Ltd)

It can also restrict what shareholders are able to do with their shares .

Shareholders in a private limited company have **limited liability** should the business fall into debt or fail. This means that their liability is limited to the value of their investment in the company, and does not extend to their personal assets.

Organisational structure

Subject Specific Vocabulary

Centralisation – where major decisions are made by one (or a few) senior people in an organisation.

Chain of command – the links between directors and workers in an organisational hierarchy.

Decentralisation – where decision making is shared between different people in an organisation.

Delayering – removal of layers of management in an organisational structure.

Delegation – giving responsibilities to another person, usually more junior in the organisation.

Layers of hierarchy – the different levels of authority in a business.

Line manager – an employee's immediate boss.

Span of control – the number of workers that report to one manager in a hierarchy.

Key Questions for this Topic

Why do businesses have internal organisational structures?

- So people know their job and responsibilities throughout the business
- So people know who does what in the business

What is an organisational structure?

- Shows how employees are organised in a business.
- Businesses have hierarchies – layers of employees with different responsibilities

- Usually shown as an Organisational Chart/Tree
- Directors at the top, then managers, then supervisors and then the workers or operatives
- The chain from top to bottom is called the chain of command and responsibility is delegated passed on to the people below. Organisational structures show how many workers report to each manager – i.e. the span of control.

What are the characteristics of a tall structure?

- Long chain of command – communication can be slow and difficult. Face to face communication is difficult - emails can help when passing on information.
- More layers of management – good for motivation and career progression of employees
- Narrow span of control – employees are monitored closely

What are the characteristics of a flat structure?

- Short chain of command – communications are quicker, fewer layers to pass through
- Managers have wide span of control – can be difficult to manage all workers
- Verbal communications can still be difficult – emails help.

What are the characteristics of centralisation?

- Major decisions made at the top – quick decision making possible but may take time to filter down to employees
- Managers at the top – usually experienced and policies should be the same throughout the business.
- Gives power to the top – may be out of touch/lack expertise and make bad decisions

What are the characteristics of decentralisation?

- Shared out authority or decision making e.g. to regional managers (less pressure on senior managers)
- Regional managers should have expert knowledge in their area (more motivating if authority is delegated)
- Quick decision making as regional managers have authority to make decisions
- Inconsistencies can develop between departments/regions (aims and goals need to be understood by all employees)
- Training may be needed for those with decentralised responsibilities

How can businesses decide on the most appropriate structure?

- Size of the business – small businesses may have flat centralised structures
- Cost – taller structures cost more money as there are lots of managers.
- Skills of the workforce – some need less supervision, some need more
- Skills of the managers – some may not be skilled in managing large teams

How can people in businesses communicate?

- Meetings
- Emails
- Video-conferencing
- Intranets
- Telephone calls
- Letters

Remember that people in businesses communicate within the business (up and down and sideways), they communicate with customers, suppliers and other stakeholders too.

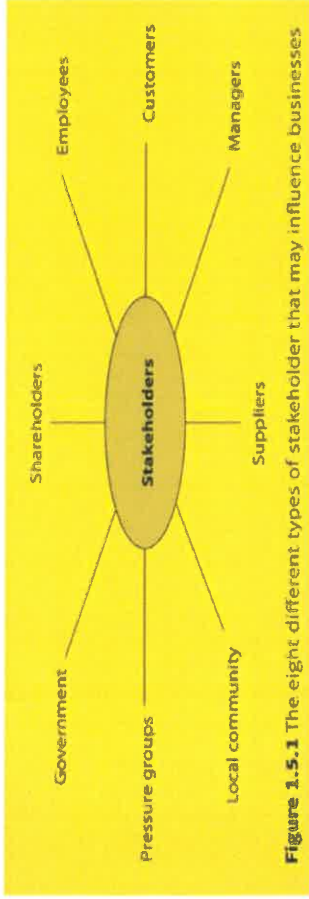


Figure 1.5.1 The eight different types of stakeholder that may influence businesses

Different types of technology used by business

The influence of technology on most businesses is very strong. This is particularly true of businesses that are able to operate worldwide thanks to the internet. There are many different technologies that businesses can use, but the most significant are:

- e-commerce
- social media
- digital communication
- payment systems.

How technology influences business activity

As you have seen, technology has a huge impact on the way in which businesses trade with each other and with customers. There are three main influences that technology has on the activities of a businesses:

- influence on sales
- influence on costs
- influence on the marketing mix.

The purpose of legislation

There are lots of reasons why legislation exists in the UK. However, when thinking about businesses, there are two key purposes of legislation:

- protecting the rights of consumers through consumer law
- protecting the rights of employees and employers through employment law.

Do you know what a stakeholder is? Examples of external/internal?

By working through you should be able to explain:

1. The characteristics, skills and motivations of an entrepreneur
2. Financial and non-financial aims and objectives that a business might have
3. Different legal structures of a business
4. The features of different organisational structures
5. How and why a business may restructure its organisation
6. Internal and external stakeholders of a business
7. The advantages of stakeholder engagement

The impact of legislation on businesses

Each year, lots of new legislation is approved and businesses need to make sure that they follow it. Businesses need to keep up to date with changes in legislation and ensure that the way in which they operate complies with the law. This has two main implications: the cost of adapting the business to comply with the law and the consequences of meeting or not meeting the business's legal obligations.

Stakeholder	Impacts on business activity
Shareholders (owners)	• Set the aims and strategy for the business, including how it behaves • Provide funding and investment to start up and expand a business.
Employees	• Provide good service, which usually results in higher sales and profits (or have a negative impact on a business's profits and reputation if they do not do their jobs well)
Customers	• Buy products and services. • Make recommendations for how to improve products and services. • Recommend the business to friends and on social media.
Managers	• Manage employees who do the day-to-day work of the business • Communicate employees' needs to senior management. • Communicate the business's needs to employees.
Suppliers	• Provide the business with the materials it needs for its products or services. • Affect the amount of products or services that can be produced and sold (for example, if a supplier cannot provide raw materials on time, production may be stopped), which can have an impact on the business's sales and reputation
Local community	• Support their local business by buying its products or services • Object to the business if it has a negative impact on the local community or local environment.
Pressure groups	• Change the business's practices, such as its delivery times or the packaging it uses. • Improve employees' conditions, such as health and safety in the workplace or fair wages. • Influence customers' opinions of the business and their buying habits.
Government	• Changes the amount of tax that the business has to pay • Passes new laws relating to the business and its industry. • Promotes different types of business activity by providing special funding for particular activities. For example, the availability of grants for wind farms has increased the number of businesses installing and operating wind farms.

Table 1.5.3 Examples of stakeholders' impact on business activity

Positive consequences	Negative consequences
• The business has a positive reputation. • Customers and other stakeholders, such as employees, feel that they are being treated fairly by the business. • Higher sales due to customers being attracted to buy from the business because of its good reputation. • Better candidates for jobs with the business, because people are attracted to work for the business.	• The business may be taken to court, resulting in fines or even prison sentences for members of staff, including the owners. • Negative media stories about the business, leading to a bad reputation. • A customer or employee is injured, suffers ill-health or is even killed as a result of the business's failure to meet legal obligations. • The business is closed down temporarily or permanently.

Table 1.5.6 The positive and negative consequences of meeting or not meeting legal obligations

Knowledge Organiser 1 : Systems Architecture

1. The purpose of the CPU

The purpose of the CPU	To manage basic operations of the computer. To be the 'brains' of the computer
The main components of the CPU	Control Unit, Arithmetic Logic Unit, Registers, Cache
Von Neumann Architecture	The architecture that allows for the storage of instructions and data in the same location
The FDE Cycle	The cycle the CPU continuously carries out to process instructions
Binary	The number system used to store instructions and data in the computer
The role of a register in the CPU	It is a place to temporarily hold data and instructions as they are being processed by the CPU.
The PC	The Program Counter keeps the address of the <u>next</u> instruction to be processed
The MAR	The Memory Address Register is used to tell the CPU where to locate data in Main Memory
The MDR	The Memory Data Register is used to store data that is fetched from Main Memory
The ACC	The Accumulator stores results of logic operations and calculations used during processing

4. Performance of the CPU

Cores	CPU's with multiple cores have more power to run multiple programs at the same time.
Clock Speed	The clock speed describes how fast the CPU can run. This is measured in megahertz (MHz) or gigahertz (GHz) and shows how many fetch-execute cycles the CPU can deal with in a second.
Cache Size	The more data that can be held in the cache, the shorter the trips the electric pulses need to make so this speeds up the processing time of each of those billions of electrical signals, making the computer noticeable faster overall.

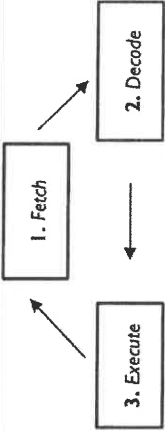
5. Embedded Systems

Definition	A computer system which forms part of an electronic device
Re-programmable	Not for different purposes but firmware can sometimes be upgraded

2. Common CPU Components and their Function

The Control Unit has two functions	(1) Sending signals to control the flow of data and instructions, and (2) decoding instructions
Cache memory	A small section of extremely fast memory used to store commonly used instructions and data. It is useful as the CPU can access the (fast) cache directly. L1 cache is closest to the CPU, L3 cache furthest
The ALU has the following functions	It carries out mathematical operations / logical operations / shifting operations on data; for example multiplication, division, logical comparisons
An Address	This is a location in the Main Memory (RAM) that stores data or instructions in the Von Neumann Architecture
Buses	Transfer information between the CPU and Main Memory (and other places). For example the Address bus carries memory addresses between the CPU and the RAM

3. The F-D-E (Fetch Decode Execute) Cycle

The F-D-E Cycle repeatedly cycles	
The Fetch Stage	The address is generated by the Program Counter (PC) and is carried to the Memory Address Register (MAR) using the Address Bus. The PC then updates and stores the next memory address, ready for the next round of the cycle. The data or instruction that is in that memory location is placed on the data bus and carried to the processor and is stored in the Memory Data Register (MDR)
The Decode Stage	The data or instruction is then the Memory Data Register (MDR). decoded to find out if it is a piece of data or if it is an instruction to do something such as ADD, STORE, SWITCH, REPEAT etc.
The Execute Stage	The CPU performs the actions required by the instruction. If it is an instruction to control input or output devices the Control Unit will execute the instruction. If it is a calculation then the Arithmetic and Logic Unit (ALU) will execute the instruction. The results of any calculations are recorded in the Accumulator.

Reasons	They are cheaper to make and smaller than a General Purpose Computer
Examples	Washing machine, Smart Oven, Car Engine, Pacemaker

Knowledge Organiser 3 : Data Storage

1. Data units	
Bit (b)	The smallest unit of data. 0 or 1
Nibble (N)	4 bits
Byte (B)	8 bits (note the difference between b and B)
Kilobyte (KB)	1000 bytes. Note KB is different from Kb
Megabyte (MB)	1000 KB
Gigabyte (GB)	1000 MB
Terabyte (TB)	1000 GB
Petabyte (PB)	1000 TB

3. Operations

Binary addition	You should arrange the two binary numbers above each other so that the columns line up. Start on the rightmost digit and add them. If there are any carries, write them down next to the next left column.
Overflow	If the answer to the left column results in a carry, this is known as an overflow and it causes an overflow error. This can cause problems if a computer program hasn't been written to handle overflows.
Left Binary Shift	Make the number longer, and therefore bigger. Each place it shifts will double the value. A binary left shift of one place (<1) will double the value, a binary left shift of two places (<2) with quadruple.
Right Binary Shift	Make the number shorter, and smaller. The right most digit is "lost", so we forget about it. A binary right shift of one place (written as $>>1$) halves the number, and a binary right shift of two places ($>>2$) will quarter it.

7. Sound

Analogue / Digital	Analogue sound waves must be converted into digital sound waves by taking a sample of the sound at set intervals. This is because computers can only work with digital 'numbers', and not analogue 'sound'
Sample rate	Number of times analogue signal is sampled per second. Measured in Hertz
Bit depth	Number of bits used per sample. Sometimes known as sample resolution
File size	Sample rate x sample resolution x seconds
Factors	Larger sample rate and/or bit depth will make the file size bigger and improve the playback quality; and vice versa. Also, making the duration of the recording longer will make the file size bigger, and vice versa

4. Characters	
Individual Characters	Each character is assigned an individual binary code to represent it. The number of bits depends on the 'encoding' used
Character Set	The name given to a collection of characters matching to binary codes. There are many examples.
Choice of Character Set	A character set encoded with more bits allows more characters. This is useful for accents, symbols, emojis, other languages (e.g. Chinese)

5. Examples of Character Sets

ASCII	7-bits to represent characters allowing 127 characters to be represented
Unicode	16 / 24 / 32 bits. Covers many modern and historic languages, as well as lots of symbols which are used in maths and other specialist areas

6. Images

Pixel	The smallest element of a bitmap image. Pixels desk
Vector vs Bitmap	A vector image describes the lines and shapes. A bitmap image consists of rows of coloured dots.
Colour Depth	The number of bits used to represent each pixel in a bitmap image. An 8 bit image can show 2^8 or 256 colours.
Resolution	In a bitmap image resolution is measured in DPI (dots per inch). The higher the resolution the better the picture quality
Metadata	Data that is saved before and after the image to tell the computer how to decode the image. It includes the size in pixels (width x height), the colour depth, the resolution, the GPS location of where the image was taken, etc.
Image size	The size of an image is width x height x colour depth (+ 10% for metadata)
Factors	Greater colour depth and/or greater resolution will make the file size bigger, and improve the quality of the image; and vice versa

8. Compression

Compression	Compression is when a file is encoded so it uses fewer bits than the original file format
Lossless compression	Gets rid of unnecessary data to re-present data without losing any information. This process is reversible
Lossy compression	Gets rid of the least essential data. This is an irreversible process: once data is lost it can't be recovered

Original Staging Conditions

The IT is about a teenage girl, **Grace**, who has something growing inside her. She doesn't know what it is – it starts in her stomach but quickly outgrows that and takes over the entirety of her insides. Grace tries to act 'normally', but she is viewed in school as isolated and weird and knows she can't contain it forever. The IT was originally written as part of the National Theatre Connections Youth Festival.

The original production was staged on the 7th March 2020 at the Sherman Theatre, Cardiff. The Sherman Youth Theatre hosted Connections that year. It was directed by Tim Howe.

It was performed in the main auditorium on an **end-on stage**.

The **staging** comprised of three flats; the two on stage right and stage left were huge triangles that mirrored each other and the middle one had a central panel cut through, which was covered with Lycra. A floorcloth was covered with triangles.

The cast was responsible for choosing the **music**, which was largely contemporary, ranging from Billie Eilish to Goldfrapp. Mr Brightside by The Killers was chosen as the song that Grace sings due to the appropriateness of the lyrics, e.g. 'I'm coming out of my cage and I've been doing just fine'. Music by Welsh language groups and artists was also used.

Costume was contemporary, naturalistic and primarily in monochrome. Grace initially had colour in her costume, suggesting she was a pop of colour in a grey world, but as the play progressed she too began to lose colour from her costume. Sam, who was played as nonbinary, was the only other character who had colour in their costume.

Lighting was basically open white. It was warmer on Grace but grew colder as she began to lose her glow. A square box Gobo was used to define Grace's safe space, which became smaller as her mental health declined.

Structure

The structure of The IT could be described as **story theatre**; characters stand back and comment on the action as well as take part. They share their thoughts and feelings, comment on events, provide transitional information from one episode to another and help to cover the expository material handled in the narrative.

Story theatre tends to use very little set and few props (these will be carefully selected and designed). The action can proceed quickly without elaborate set changes.

Story theatre is highly **episodic**, with the action taking place in a variety of places in the course of many scenes. Each episode gives the audience an insight into characters and events that have played a significant part in Grace's life and how they contributed in helping to create the 'it'.

The structure is also **non-linear**. The play moves back and forth, focusing on a number of key events, e.g. the news item on pages 29-31 that eventually contribute and culminate with Grace's breakdown at the end of the play. • The fragmented structure allows two different perspectives to be seen and the audience is left to decide whose version of events they trust.

CONTEXT



YEAR 10 DRAMA TERM 3 The IT: Key Themes

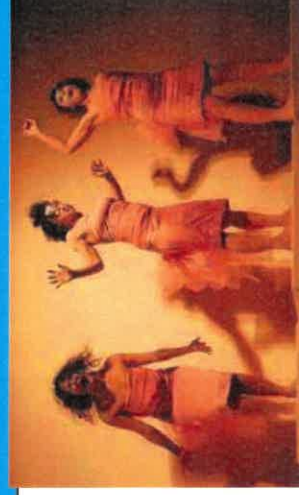
Mental health The play focuses on how the life of an average teenager can suddenly be destroyed by deterioration in their mental health. It highlights how quickly anxiety issues can appear and how quickly a number of factors can contribute to making these issues worse until, eventually, it is brought to a head.

Pressure The theme of mental health is interwoven with the different types of pressures that could contribute to the deterioration of a young adult's mental health. Grace is put under pressure from her parents to work hard and perform her very best, the school initiates motivational talks to encourage students to achieve their very best and to 'harness their power', the need to conform and fit in and how a failure to achieve this can lead to ridicule even when you excel at something, e.g. 'The fastest tits in the borough', etc.

Impact of the media Much of Grace's anxiety is fuelled by events that she cannot control but is aware of because of the media that surrounds her. World and local events are a source of worry and concern for Grace as she becomes aware of suffering, destruction, death and decay. Each time she hears about these events it 'feeds' the IT.

Isolation Although the play focuses on Grace and her growing isolation, the play alludes to other students who feel equally alone. Riley Miller, Sam and Student 22 all struggle to fit in but put on a brave face or just 'drop out'.

You will answer questions on this set text in your written exam



Style

The IT falls into a number of possible styles.

The style has been described as '**direct to camera documentary**'. The play uses reports and media material, e.g. the lesson (pages 31-33), and interweaves them with events from Grace's life. Documentary theatre often works off the continuous tension and juxtaposition of the actual situation; The IT interweaves these situations so they become a major influence on Grace's mental health, continually feeding the 'IT'. There is also the effect of direct address 'to the camera' as both Grace and other characters comment on these events and their views/feelings.

There are elements of **epic theatre**. This is a type of political theatre that addresses contemporary issues. Bertolt Brecht developed it, although later in his life he preferred to call it dialectal theatre. Epic theatre uses a number of techniques to distance the audience, allowing them to remain objective so they can make rational judgments about any social comments or issues. There are a number of techniques associated with epic theatre that are used in The IT, e.g. minimal setting, clear political point or focus, direct address to the audience, episodic structure and multi-rolling

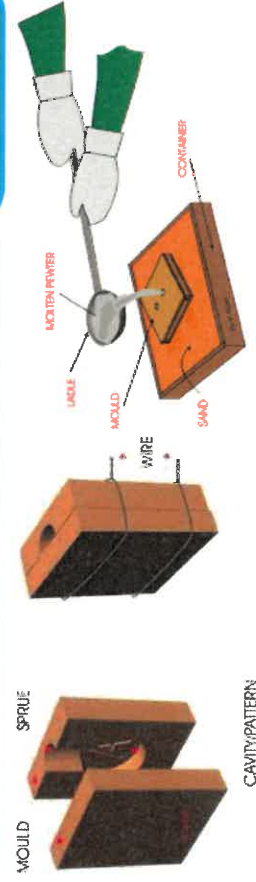


<https://www.youtube.com/watch?v=pXj08N3P9f8>

WEDD&T RESISTANT MATERIALS



Tools and Equipment	
Measuring and marking	
Steel rule	An accurate tool for measuring and marking out
Try square	A tool used to check right angles on wood or plastic
Template	A template is a tool used to mark out shapes repeatedly
Cutting	
Hack saw	A general purpose metal work saw
Metal vice	Supports work whilst cutting or finishing
Pillar drill	A machine used to make holes in materials
Laser cutter	CAM: Laser cutting is the use of a high-powered laser to cut, etch and engrave your material



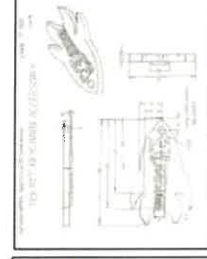
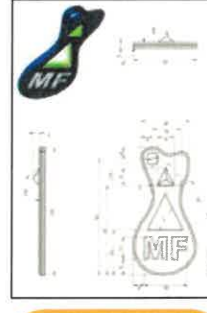
Shaping and finishing	
Metal file	Used to shape or smooth wood, metal or plastic
Wet and Dry Paper	An abrasive paper used to smooth the surface or edges of plastic
Draw filing method	A technique used to produce a fine filed surface
Cross Filing method	A technique used to produce a fine filed surface
Pewter casting mould	Heating metal into liquid form and pouring it into a mould



Keywords	
Ideation	Evaluation
Specification	Orthographic
Research	Pewter
Manufacture	Mould
Design	Sprue

Metals and Alloys	
Ferrous Metals: <i>these metals contain iron</i>	Low Carbon Steel High Carbon Steel Cast Iron
Non-ferrous Metals: <i>these are pure metals</i>	Aluminium Copper Tin Zinc
Alloys: <i>a mix of one pure metal and another element</i>	Brass Stainless steel High speed steel

Manufacturing	
Brazing Hearth	Raises metal to high temperatures using a blow torch
Welding	Fusing together two metals of the same type using a filler
Brazing	Fusing together two metals using spelter (a type of filler)
Annealing	The process of softening metals to make it workable
Casting	Heat metal to liquid and pour into a mould



What is good design?	
Clear ideas	Annotations
Measurements	Content
Presentation	Balance

Maths in DT:	
Multiplication	Divide
Add / Subtract	Measurement conversion
Ratios	Percentages
Surface area	

Health and Safety in DT:	
Listen to your teacher's instructions	Always wear an apron
Long hair should be tied back	Don't use equipment you are not trained on
Always stand up during practical lessons	When using machines, always wear safety glasses
Only use the stop button in an emergency	Work quietly and be sensible and careful at all times



AIMS at a glance- to learn about

- Composition of food
- Preparation, cooking and safe use of food
- The science of ingredients
- Food sources and origins
- Cultures
- Food choices and healthy well being
- Food choices and the global environment
- Being an informed food consumer

NEA and WRITTEN ASSESSMENT

Food investigation Task – 20%
Food preparation task – 30%
Written assessment – 50%

PRACTICAL SKILLS

Skill 1 - General practical skills
Skill 2 – Knife skills
Skill 3 – Preparing fruit and veg
Skill 4 – Use of the cooker
Skill 5 – Use of equipment
Skill 6 – Cooking methods
Skill 7 – Prepare, combine and shape
Skill 8 – Sauce making
Skill 9 – Tenderise and marinate
Skill 10 – Dough
Skill 11 – Raising agents
Skill 12 – Setting mixtures

GCSE FOOD PREPARATION AND NUTRITION- KNOWLEDGE ORGANISER

KEY WORDS

- ANALYSE
- HYPOTHESIS
- CONTROL
- MENU
- LIFESTAGE
- CULINARY TRADITIONS
- TIME PLAN
- DOVETAIL
- MISE en PLACE

TOP TIPS FOR COMPLETING NEA WORK

- Plan your work carefully
- Include aims and conclusions
- Explain and justify decisions
- Research must be concise
- Show case your practical skills
- Use subject specific terminology
- Nutritional knowledge must be evident

COURSE CONTENT

- Food nutrition and health
- Nutritional needs and health
- Food science
- Food safety
- Functional and Chemical properties of food
- Principles of food safety
- Food choices
- Cuisines
- Sensory evaluation
- Food provenance

A01	Develop ideas through investigations informed by contextual and other sources, demonstrating analytical and cultural understanding.
A02	Refine ideas through experimenting and selecting appropriate resources, media, materials, techniques and processes.
A03	Record ideas, observations and insights relevant to their intentions in visual and/or other forms.
A04	Present a personal, informed and meaningful response demonstrating analytical and critical understanding, realising intentions and, where appropriate, making connections between visual, written, oral or other elements.

Task One- A01/A02

Present a moodboard bursting with images of Wearable Art

You can use materials like; magazines, posters, leaflets, books and newspapers to find imagery as well as the internet. Fill the entire page with imagery.



A01: INVESTIGATE

Research, analyse and develop ideas

A02: EXPERIMENT

Explore a range of media, techniques and processes

A03: RECORD

Draw, photograph, write

A04: OUTCOME

Make a final piece of art

Task Two A03

Create a range of designs linked to your culture of possible 'wearable Art' designs.

Link to inspirational Artists that have influenced your mood board from Task One

Task Three A04

Produce your outcome

Make your 'wearable Art piece'.

Consider the range of construction and surface decoration techniques that you have explored in class.

GCSE TEXTILES CULTURES

ANALYSING ARTIST'S WORK

Name, Title, Date & Image

1. INTRODUCTION Describe the artist. Consider the following: • Who created the work? • What themes does the artist explore? • What is the general style of their work? • What materials or media are they using?	2. CONTEXT Explain and contextualise the artist's work. Consider the following: • What was the artist's background? • What was the artist's role in the world? • What was the artist's influence on the world? • What was the artist's impact on the world?	3. CONTENT Explain why the photographer has created the image. Consider the following: • What is the photographer's role? • What is the photographer's purpose? • What is the photographer's message? • What is the photographer's style?	4. THE FORMAL ELEMENTS Describe the formal elements of the artwork. Consider the following: • Line • Shape • Colour • Form • Texture • Pattern • Space	5. PROCESS Explain how the artist created the artwork. Consider the following: • What materials or media did the artist use? • What techniques did the artist use? • What tools did the artist use? • What was the artist's process?	6. MOOD Describe the mood of the artwork. Consider the following: • What is the mood of the artwork? • How does the artist create the mood? • What is the artist's message?	7. CONNECTIONS Explain how the artwork connects to other artworks. Consider the following: • What is the artist's influence on other artists? • What is the artist's impact on other artists? • What is the artist's role in the world?	8. EMULATE (for Art) Create your own high quality practical response to this artwork using similar materials and techniques.
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English – What makes a great story?

Year 10 – Term 3 - Fiction



"The more people read fiction, the easier they find it to empathise with other people"



Key words / ideas

First, second or third person narrator.

OMNISCIENT NARRATOR

TENSE (usually past)

How to engage the reader

How establish setting / atmosphere

How to direct the reader's **EMPATHY**?

How to shape the reader's expectations?

GENRE

EXPOSITION - pace – balance of exposition (giving information), description or action.

DIRECT / INDIRECT SPEECH?

FORESHADOW

ANALEPSIS / PROLEPSIS (flashback / flashforward)

'Our fiction addiction: Why humans need stories' -



SCAN ME

<https://www.bbc.com/culture/article/20180503-our-fiction-addiction-why-humans-need-stories>

CLICK ME

Key Questions

Why do we enjoy stories?
What makes a great story?
How is a written story made?



'The Hitchhiker'
Roald Dahl

What's your favourite story?

The **WILSON** acronym used with unseen poetry can also help with fiction.

What is it about? Who is speaking? Where are they? What happens and why?

Ideas – what ideas or themes does the writer explore?

Language – Are there any specific words or language techniques?

Structure – how is the extract structured and organised?

Opinion – why do you think the writer wrote it? Is there a message?

Now plan – write your thoughts about the text that you have read



'The Little Things' -
Raymond Carver



Y10 – 'Macbeth' term 3/4

Key Quotations

- "Fair is foul, and foul is fair." The witches.
- "Is this a dagger which I see before me?" Macbeth
- "Unsex me here." Lady Macbeth
- "Out damned spot! Out I say!" Lady Macbeth
- "His mother's womb untimely ripped." The witches/ Macduff.



KEY WORDS

- Loyalty
- King
- Guilt
- Fear
- Prophecy
- Supernatural
- Hallucination
- Treason

Contextual Information

Witchcraft	People believed in witches and bad events were blamed on women who were considered to be witches. They were also tested in this time and KJ was superstitious about them.
King James I	Ordered huge witch hunts (bigger than ever seen before) in Scotland. He also survived an assassination attempt.
Monarchy	His mother was known as an incompetent ruler and KJ was constantly worried, when he became King of England, that people would rebel and overthrow him.

Themes

Ambition	Macbeth allows his ambition to overwhelm him and becomes a murderer. LM is affected by the guilt of her actions caused by her ambition.
Guilt	Macbeth feels guilt early on whilst LM becomes guilty later on which leads to her increasing lack of sanity.
The Supernatural	The witches are a clear image, as well as Macbeth disrupting the social and political order by killing KD. Also raging storms are presented mirroring Macbeth & LM's acts.
Power	Macbeth deeply desires power. Macbeth abuses his power when he is King to avoid any threats. Lady Macbeth also desires power which is not considered a traditional trait for a woman of this time.
Masculinity vs Femininity	Many questions around manhood towards Macbeth and Macduff from their wives because of their decisions.

Plot Summary



SCAN ME

<https://www.youtube.com/watch?v=NmMAO82R8Cg&list=PLqGFsWf-p-5CMn89C0vaU5scvYI>

CLICK ME

Or



SCAN ME

<https://www.bbc.co.uk/bitesize/topic/zgq3dmn>

CLICK ME

Or

How to structure your answer

How to structure your answer:

Point: Use the words from the question and include a method used by the writer.

Evidence: For example/ This is seen when '...'

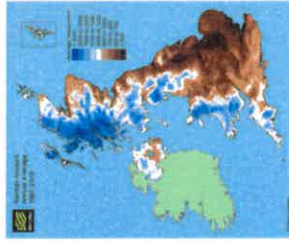
Technique/Analysis: This word/method '...' implies... Furthermore, the word '...' is crucial because...

Link (AO3): This could represent/symbolise the ... in society/it may represent Dickens view that...

Literature Paper 1, Section A
- Extract question. 45 minutes.

UK Physical Characteristics

- Most mountains are located in the **north and west**, such as Wales and Scotland.
- These areas have **few roads** and **settlements** but beautiful scenery. – Sparsely populated.
- South and east** of the UK is **flat** with a few hilly areas.
- These areas are suited for **settlements, roads and railways** – densely populated.
- Rivers flow from mountainous areas down to the sea.



UK Rainfall Patterns

- Highest rainfall is in the north and west** where average rainfall is **2500mm**.
- Lowest rainfall is in the south and east** with average rainfall of **500 – 625mm**.

UK Relief Rainfall

When air carrying moisture reaches upland areas, it is **forced up** to produce **relief rainfall**.

The other side of the upland area has **little moisture**, this is called the **rain shadow**.



Water stress in the UK

Water stress is when areas have limited water supply.

Problems

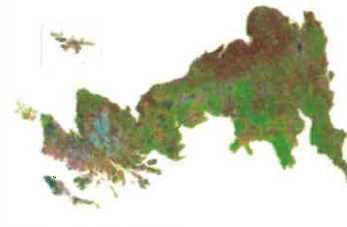
- Most rainfall occurs in **North & West** but least rainfall in **South & East**.
- South & East UK** therefore have **High demands**.
- Demands involve domestic, industrial & agricultural uses.

Solutions

- Water can be **transferred** from the wetter west to drier east by **pipelines** or rivers.
- Construct **new reservoirs** in the east to **capture/store** more water.
- Greater **water conservation**.

Land use in the UK

Land use varies throughout the UK. However our land is **always changing**. Nonetheless, the **vast majority** of the UK is **farmland**.



UK mountain areas (Scotland) have rough pastures and moorlands. The climate is harsh and soil is poor for crops

Grasslands are found in the west. It is ideal for cattle and sheep because of the mild and wet climate.

Grasses	52%
Arable	20%
Urban	14%
Forest	12%
Water	1%
Other	1%

Arable farmland dominates because of the warm, sunny and dry climate. Crops such as cereals and vegetables are found in the South and East.

Coniferous woodland are found in northern England, Wales and Scotland. There areas have poor soils and are remote.

Urban areas are growing. This outward growth or sprawling urban developments is caused by population growth.

Topic 7

UK in the 21st Century

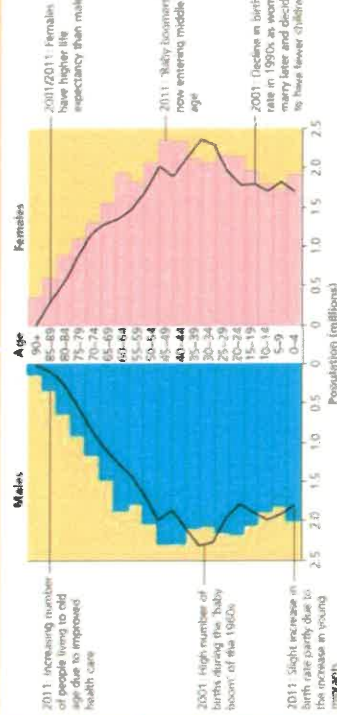
Population in the UK
The UK population is **65 million** and still rising. It is predicted to reach **70 million** by 2030.

Reasons for growth

Natural increase – the difference between deaths and births.
Net migration – the difference between immigration to the UK and emigration from the UK.
Life expectancy – the average age someone will live up to.

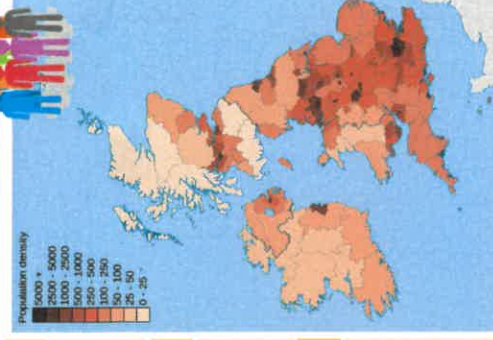
Future of growth

The UK's **population pyramid** shows that the country's birth rate is fairly low and death rate is also low meaning there are more elderly people.
Population pyramids are useful to help plan for the future.



UK Population Distribution

Low	Much of Northern Scotland is spare due to a mountainous landscape and difficult climate .
High	Rest of the UK because of the gentle hills, moderate climate and good transport routes .
Very High	Population is concentrated around the South East of England, in cities such as London, due to attractions of employment, shops and entertainment .



Factors affecting population density

Moderate climate.	Remote and poor communications.	Opportunities for work
A presence of raw materials.	Steep and mountainous.	Fertile and suitable for farming.
Poor quality of soil.	Plentiful supplies of water.	Flat land for farming.

UK Housing Shortage

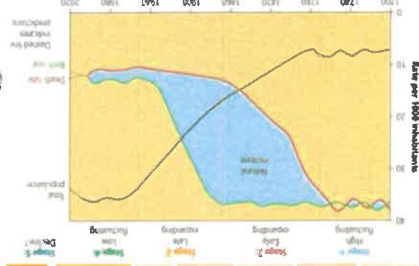
Problem and Reasons

- The UK **population is rising** and therefore **more houses are needed**.
- UK needs to build **240,000 homes a year**, but only half that are built.
- As a result, **house prices are rising** and becoming too expensive.
- Planning permission for new houses leads to **local opposition**.
- Green belt areas** prevents urban areas becoming bigger.
- The **price of lands keeps rising** due to demand.

Demographic Transition Model (DTM)

As countries experience economic development they also go through stages of population transition. The DTM describes this change and shows the UK in stage 4.

1	Birth rates high and death rates fluctuates.
2	Birth rate high but death rate is falling rapidly. Natural change increases.
3	Birth rate and death rate falling rapidly. Natural change is rapid.
4	Birth rate and death rate is low and fluctuating. Little Natural changes.
5	Birth rate is falling and death rate is rising slightly. Natural change falls.



Ethnic Diversity in Bristol	
- Bristol is a youthful city with 16-24 years old being the most common age range. This is due to the University and Bristol attracting jobs from that age range. - The ethnic make up of Bristol remains mostly White British however this % is decreasing. The BAME population has doubled since 2001 from 6% to 12%. The majority of the BAME population live in or near the inner city.	
UK Ageing Population	
Distribution of Ageing Population	
Around 18% of the population are over 65. The distribution of older people is high in coastal areas, especially in east and south-west England. However, it is lower in Northern Ireland and Scotland and generally in big cities.	
Causes	- Large number of people were born after the WW2 and are now moving into old age – Baby boomers. - Improved healthcare and new treatments to prolong life. - Greater awareness of the benefits of a good diet and exercise.
Effects	- Healthcare cost are very high and will increase with an increasing ageing population. - Shortage of places in care homes, many of which are becoming increasingly expensive. - Many older people join clubs and spend on travel therefore helping to boost the economy – the grey pound.
Response	- Government pension bonds to encourage older people to save money for the future. - Pensioners receive support in care, transport and heating allowance to make life more comfortable. - Allowing more immigration will provide the demand needed of a younger workforce needed for the economy.
UK's Changing Economy	
- UK has one of the largest economies in the world. - The last few decades, heavy manufacturing industries have declined due to competition from abroad. - Now the UK is moving into the service industry such as finances, technology and media.	
Political Changes	
- Between 1997-2007, the UK economy grew strongly & unemployment decreased. This was due to increase investment in education & technology. - In 2008 the UK entered a recession and unemployment increased. Recession ended in 2009, creating a strong focus for decreasing the national debt occurred in 2010 elections.	

UK Employment Sector	
Key changes since 2001	
- The quaternary industry has increased, whilst secondary has decreased. - Number of people employed in primary and tertiary industry has stayed the steady. - Big increase in professional and technical jobs. - Employment in manufacturing has decreased the most due to cheap labour abroad.	Key - Agriculture - Services - Industry (including construction)
UK Working Hours	
- In 2011 the average number of hours worked in the UK was 42.7. - This figure is the 3rd highest figure within the EU. - Fathers now work fewer hours to look after children. - Number of mothers in fulltime work has increased.	
UK's Core Economic Hubs	
An economic hub is a central point or area associated with economic success and innovation. Many of these economic hubs are located near universities. Below is a selection of economic hubs throughout the UK.	
Belfast Titanic Quarter Film studio, offices and education based on the old shipyard.	Aberdeen Centre for the North Sea oil and gas industry, now developing as a research and development hub.
Salford Media industry including BBC and ITV. Manufacturing of chemicals.	Silicon Glen High-tech industries based in key Scottish cities. They focus on electronics and software.
Bristol Creative and digital industries. Key services such as law and finance.	Silicon Fen High tech research hubs associated with Cambridge University.
Case Study: UK Economic Hub - Bristol	
Bristol has the 2nd fastest growing economy in the UK. It is the economic capital of the south west.	
Change Over Time	Significance to the UK
An Enterprise Zone and Science Park have been developed in Bristol which increases jobs and attracts top businesses to the city.	The development of the port means that 25% of British fuels are imported here, and 10,000 jobs depend on the business located in the port which contributes £1 billion to the UK economy..

The UK's Role in the World	
The UK may be a small island state, but it does play a significant role in the wider world. It is also part of several key international organisations.	
NATO A group of 28 countries who work militarily and politically to resolve conflict as a last resort.	UN Is made up of 193 member states with the aim of maintaining peace and resolving issues. UK is part of the Security Council.
G7 Involves seven of the wealthiest western countries to discuss relevant issues and come to economic agreements.	
Case Study: The UK in Resolving Conflict in Middle East	
Basic Background	Success?
AS part of NATO, the UK joined forces with the USA to remove the Taliban from power in Afghanistan. This is because the NATO powers felt they were at threat from terrorism. Once the Taliban fell, the UK sent troops into Afghanistan to maintain peace and provide the Afghan government with support.	The UK forces did allow for the Afghan government to set up new infrastructure for the country however in 2021, the UK and US forces withdrew from Afghanistan and consequently the Taliban have regained control of the country.
UK Involvement	
- The UK, as part of NATO, sent troops and the RAF to neighbouring countries. - In 2015, the UK gave £15 million in aid to Ukraine as well as military support.	
UK Media Exports	
- The UK exports many different types of media products such as films, TV and music and books. - Exporting media is key to the UK economy as it employs 1.7 million people and generates £17 billion. - Example: Harry Potter sold 400 million copies to 200 territories.	UK's Media's influences - Most exports are in English, meaning it develops other's understanding of our language. - Many people around the world copy fashion & styles seen in UK media. - Can attract people to visit the UK.
Multicultural UK	
The UK is a multicultural country due to many ethnic minorities moving here from India, Pakistan, Caribbean and parts of Africa. These groups have shared their culture and have influenced the UK in many ways especially in food	
Food Food that has originated from other countries have become very established (i.e. and Pizza). Many mainstream supermarkets sell a great range of ingredients and ready made foods from other cultures. In Birmingham, the Balti Triangle has become a famous tourist attraction known for serving the best Balti in the country. The Chicken Tikka Masala is a dish that combines the cultures of India and the UK (the dish was invented in Scotland)	

Enquiry: Why did the Cold War begin? 1941-1958

Outline: During the Second World War, the USA and the USSR were fighting on the same side but relations were never easy. Once the war ended, the divisions between the two countries grew and developed into a global conflict. However the causes for this were wide ranging and complex.

Date	Event	What happened
1941	Grand Alliance between Britain, USA and Soviet Union.	All were united to mastermind the defeat of the common enemy of the Axis powers.
1945	Yalta and Potsdam conferences	Decisions were made about how the world should be organized after WW2
1945	USA used the atomic bomb	USA dropped two bombs on Hiroshima and Nagasaki to the WW2.
1946	"Iron Curtain" speech	Churchill warned the world about the threat of communism spreading.
1947	Marshall Plan	Plan to help countries after WW2 with economic aid to rebuild.
1948	Berlin blockade	USSR blocked supplies coming into Berlin so USA and Britain airlifted aid to Germany.
1949	NATO set up	An organization set up to protect countries against Soviet aggression.
1955	Warsaw Pact	USSR agreement with communist countries to provide support against western aggression.
1956	Hungarian Uprising	People protested about the lack of freedom in Hungary and the Soviets reacted strongly.

History – GCSE Knowledge Organiser Topic 4



Key individuals.

Joseph Stalin. Leader of the USSR until 1953. He wanted to increase Soviet influence in the world and prevent US dominance.



Harry Truman. President of the USA from 1945-1953. He wanted to stop Soviet expansion and wanted to contain the spread of Communism.



General Marshall. Leader of US armed forces in WW2. Organised aid to Europe in The Marshall Plan. This was intended to help countries so they could rebuild and then not be so vulnerable to communist influence or takeover.



Key vocabulary:

Arms race: competition between the USA and USSR to have the most weapons which would prove their superpower status.

Axis powers: Germany, Japan and their allies during WW2.

Berlin airlift: USA and Britain transporting supplies to break the Soviet blockade of Berlin.

Capitalism: when people believe that everyone should be free to own property and make money. This was the USA's ideology.

Colonialism: economic, political and cultural control of another country.

Comecon: Soviet aid to communist countries to keep them strong.

Cominform: an organisation set up by Stalin to control other communist countries.

Communism: an ideology where everyone is meant to be equal and wealth and property is shared out. This was the USSR's ideology.

Conventional: weapons which are allowed to be used in war. These don't include chemical, biological or nuclear weapons.

Containment: policy of the USA to control the spread of Communism.

Deterrent: a force that prevents something from happening. Nuclear weapons were seen as so awful that they were a deterrent to their use.

Domino Theory: Eisenhower's idea that communism could spread through Asia like a line of dominos falling.

Ideology: a system of ideas which some people can follow obsessively.

"Iron Curtain" speech: Churchill's 1946 speech where he warned of the Soviet threat to the freedom of Europe.

Marshall Plan: USA's funding to countries in Europe after WW2 to rebuild their economies.

NATO: North Atlantic Trade Organisation set up by the USA to provide military support to countries that feared communist takeover.

Proxy war: a war fought indirectly between countries, often in another country.

Reparations: payments after a war from the losing country to the victors.

Satellite state: a nation that used to be free but is now controlled by another country. In the Cold War these were controlled by the Soviets.

Truman Doctrine: President Truman's policy to help countries who asked for support in stopping the spread of communism.

United Nations: international organisation set up to prevent future wars.

USSR: Soviet Union, led by Stalin until his death in 1953, and then by Khrushchev

Veto: Forbid or refuse. In UN votes, some countries could veto the overall decision made. These included the USSR, the USA and Britain.

Warsaw pact: Stalin's reaction to NATO to challenge US influence in Europe.

Enquiry: Why did the Cold War begin? 1941-1958

Key facts on the early tensions between East and West.

Once the allies in WW2 knew that Hitler would be defeated, tensions broke out.

The 1943 Tehran Agreement said that USA and GB would attack Germany in western Europe and Stalin's USSR would attack Japan once the war in Europe was won.

At Yalta in Feb 1945, Germany was to be split into 4 zones (USA, USSR, GB and France).

Germany to pay \$20 billion in reparations (half to USSR). UN to be set up. Stalin agreed Eastern Europe could have free elections.

April 1945, Roosevelt died and his VP Truman took over as US president. In GB Churchill lost the election so Attlee was the new PM.

At Potsdam in July-August 1945, Berlin (in the Soviet) sector was to be divided into 4 zones. No agreement over Eastern Europe.

The use of atomic bombs by the USA on Hiroshima and Nagasaki in August 1945 destabilised the Grand Alliance.

Kennan's Long Telegram in 1946 said that Stalin wanted to destroy capitalism and believed the world wanted to destroy communism. Strong resistance would be needed to control the USSR.

1946 - Novikov Telegram said the USA didn't want to work with the USSR and wanted to dominate the world.

March 1946 - Churchill's Iron Curtain speech in Fulton, Missouri mentioned fears of spreading communism. Hungary (1949), Poland (1947), Romania and Bulgaria (1945) and Czechoslovakia (1948) became satellite states with communist governments.



Prior learning?
Escalation
Ideology

History – GCSE

Knowledge Organiser

Topic 4



Key facts on the development of the Cold War:

March 1947 – Truman paid \$400 million to aid Greece and Turkey = Truman Doctrine.

Between 1948-58 Marshall Plan gave \$12. 7 billion in aid on top of \$13 billion already given. Called "dollar imperialism"

Cominform had 9 members in 1947 but Yugoslavia (run by Tito) was expelled in 1948.

By 1950, Comecon had 8 members and Five Year Plans.

By 1948, Germany and Berlin had formed into Trizonia (US, GB and France) and Soviet sectors. Trizonia had a new currency = deutschmark.

June 1948 Stalin shut off Berlin's land routes.

Operation Vittles saw a new runway at Berlin-Tempelhof and a new airport at Berlin-Tegel. 2,000 tonnes of supplies sent in every day by US and GB. Jan 1949 saw 170,000 tonnes.

9 May 1949, USSR lifted the blockade.

23 May 1949 – Federal Republic of Germany formed out of Trizonia = West Germany.

15 September 1949, first chancellor elected: Konrad Adenauer. Capital at Bonn.

October 1949 German Democratic Republic formed = East Germany.

April 1949 – NATO formed as a mutual defence pact.

By August 1949, the USSR developed their own atomic bomb.

Exam question focus: 8 mark consequence questions.

Explain TWO consequences of an important event.

Key facts on how the Cold War intensified:

1950 Korean war broke out until 1953. USA and USSR had supported opposite sides.

1952 USA developed the hydrogen bomb = 1,000 times stronger than atomic bombs. USSR copied this in 1953.

1957 – USA developed the ICMB to hit targets 4,500 km away. Soviets then made their own.

1953 – new US president = Eisenhower.

Stalin died in 1953 but new Soviet leader was Khrushchev not chosen until 1956.

May 1955, West Germany joined NATO so the Warsaw Pact was set up by the USSR = Eastern bloc.

1956 Hungarian people protesting against lack of freedom. Soviet troops restored order and replaced the leader, Rakosi with Nagy.

Nagy tried to reform Hungary and in Nov. 1956 he tried to leave the Warsaw Pact.

4 Nov, 1,000 Soviet tanks arrived and up to 20,000 Hungarians were killed in the uprising.

July 1958 Nagy was executed.

Radio Free Europe was funded by the USA and encouraged rising up against communist regimes.



Furthering learning

Want to find out more about the start of the Cold War?



YEAR 10 — GEOMETRY...

@whisto_maths

Angles and bearings

What do I need to be able to do?

By the end of this unit you should be able to:

- Understand and represent bearings
- Measure and read bearings
- Make scale drawings using bearings
- Calculate bearings using angle rules
- Solve bearings problems using Pythagoras and trigonometry

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

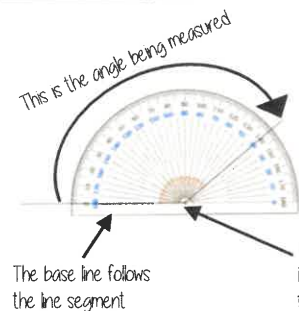
Construct: to draw accurately using a compass, protractor and or ruler or straight edge.

Scale: the ratio of the length of a drawing to the length of the real thing

Protractor: an instrument used in measuring or drawing angles.

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° .

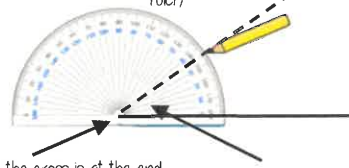
Make sure the cross is at the point the two lines meet.

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

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

R

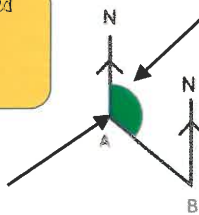


Angle Notation: three letters $\widehat{ABC}$. This is the angle at $B = 113^\circ$. $\angle ABC$ is also used to represent the angle at B.

Understand and represent bearings

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

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



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

Using **estimation** it is clear this angle is between 090° and 180°

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

Directions

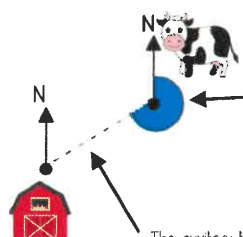


Clockwise

Anti-Clockwise



Measure and read bearings



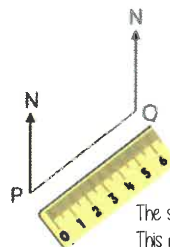
The bearing of the cow to the barn

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

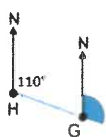
The scale may need to be calculated from the image. This represents 30km from P to Q

The units in the ratio scale are the same

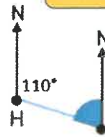
6cm = 30km
6:30,000

Bearings with angle rules

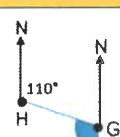
Because two North lines are **PARALLEL**...



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

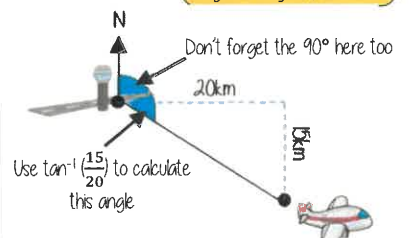
Bearings with right-angled geometry

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

"Due West" bearing of 270° makes a 90° angle

"Due East" bearing of 090° makes a 90° angle

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



Use $\tan^{-1}(\frac{15}{20})$ to calculate this angle

YEAR 10 — GEOMETRY...

@whisto_maths

Working with circles

What do I need to be able to do?

By the end of this unit you should be able to:

- Recognise and label parts of a circle
- Calculate fractional parts of a circle
- Calculate the length of an arc
- Calculate the area of a sector
- Understand and use volume of a cone, cylinder and sphere.
- Understand and use surface area of a cone, cylinder and sphere.

Keywords

Circumference: the length around the outside of the circle — the perimeter

Area: the size of the 2D surface

Diameter: the distance from one side of a circle to another through the centre

Radius: the distance from the centre to the circumference of the circle

Tangent: a straight line that touches the circumference of a circle

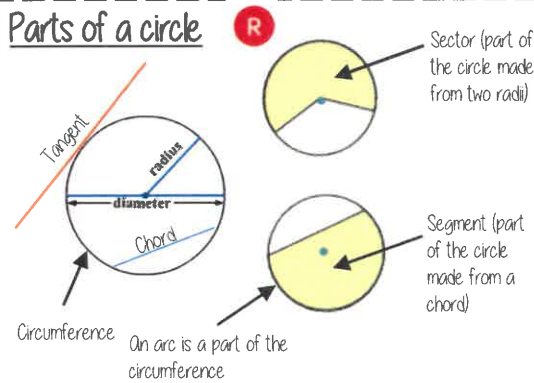
Chord: a line segment connecting two points on the curve

Frustrum: a pyramid or cone with the top cut off

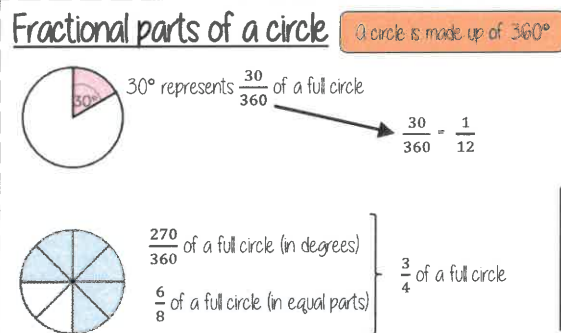
Hemisphere: half a sphere

Surface area: the total area of the surface of a 3D shape.

Parts of a circle



Fractional parts of a circle

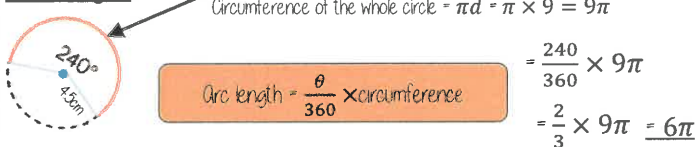


A circle is made up of 360°

Formula to remember
Area of a circle = πr^2
Circumference of a circle = πd or $2\pi r$

The fraction of the circle is as $\frac{\theta}{360}$
 θ represents the degrees in the sector

Arc length



Remember an arc is part of the circumference
Circumference of the whole circle = $\pi d = \pi \times 9 = 9\pi$

$$\text{Arc length} = \frac{\theta}{360} \times \text{circumference}$$

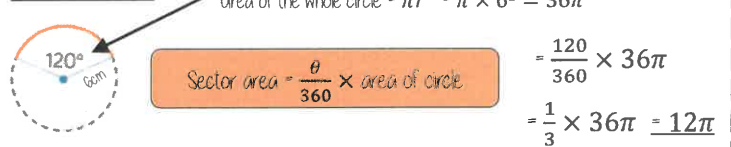
$$= \frac{240}{360} \times 9\pi = \frac{2}{3} \times 9\pi = 6\pi$$

Perimeter

Perimeter is the length around the outside of the shape
This includes the arc length and the radii that enclose the shape

$$\text{Perimeter} = \frac{\theta}{360} \times \text{circumference} + 2r = 6\pi + 9$$

Sector area

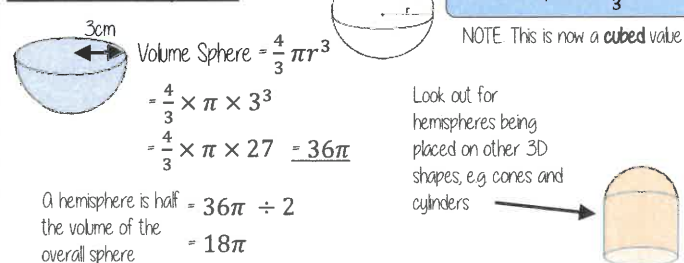


Remember a sector is part of a circle
Area of the whole circle = $\pi r^2 = \pi \times 6^2 = 36\pi$

$$\text{Sector area} = \frac{\theta}{360} \times \text{area of circle}$$

$$= \frac{120}{360} \times 36\pi = \frac{1}{3} \times 36\pi = 12\pi$$

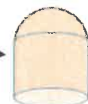
Volume of a sphere



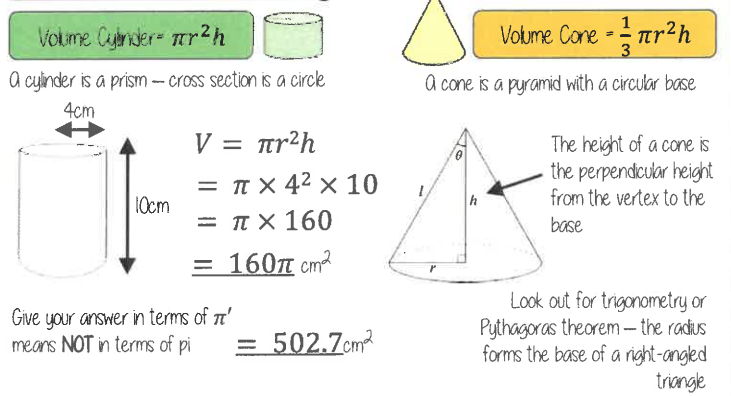
$$\text{Volume Sphere} = \frac{4}{3} \pi r^3$$

NOTE: This is now a cubed value

Look out for hemispheres being placed on other 3D shapes, e.g. cones and cylinders



Volume of a cone and a cylinder



A cylinder is a prism — cross section is a circle

A cone is a pyramid with a circular base

$$\begin{aligned} V &= \pi r^2 h \\ &= \pi \times 4^2 \times 10 \\ &= \pi \times 160 \\ &= 160\pi \text{ cm}^2 \end{aligned}$$

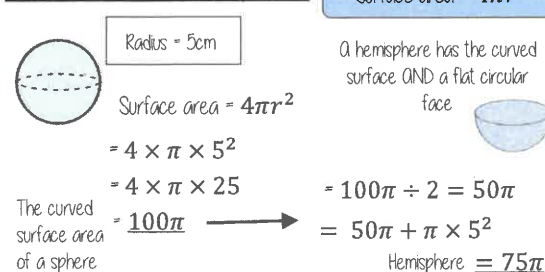
Give your answer in terms of π means NOT in terms of pi

$$= 502.7 \text{ cm}^2$$

The height of a cone is the perpendicular height from the vertex to the base

Look out for trigonometry or Pythagoras theorem — the radius forms the base of a right-angled triangle

Surface area of a sphere



$$\text{Surface area} = 4\pi r^2$$

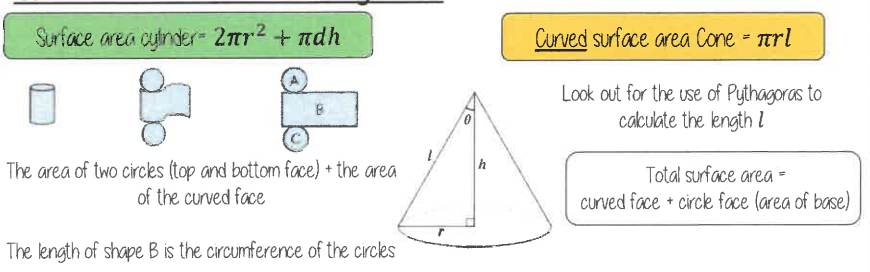
A hemisphere has the curved surface AND a flat circular face

$$= 100\pi \div 2 = 50\pi$$

$$= 50\pi + \pi \times 5^2$$

$$\text{Hemisphere} = 75\pi$$

Surface area of cones and cylinders



$$\text{Surface area cylinder} = 2\pi r^2 + \pi d h$$

$$\text{Curved surface area Cone} = \pi r l$$

The area of two circles (top and bottom face) + the area of the curved face

The length of shape B is the circumference of the circles

Look out for the use of Pythagoras to calculate the length l

Total surface area = curved face + circle face (area of base)

YEAR 10 — GEOMETRY...

@whisto_maths

Vectors

What do I need to be able to do?

By the end of this unit you should be able to:

- Understand and represent vectors
- Use and read vector notation
- Draw and understand vectors multiplied by a scalar
- Draw and understand addition of vectors
- Draw and understand addition and subtraction of vectors

Keywords

Direction: the line our course something is going

Magnitude: the magnitude of a vector is its length

Scalar: a single number used to represent the multiplier when working with vectors

Column vector: a matrix of one column describing the movement from a point

Resultant: the vector that is the sum of two or more other vectors

Parallel: straight lines that never meet

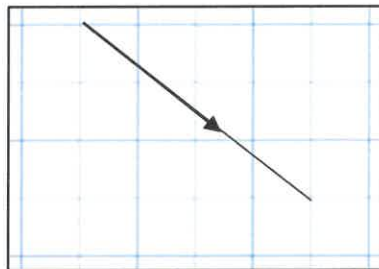
Understand and represent vectors

Column vectors have been seen in translations to describe the movement of one image onto another

Movement along the x-axis →

$\begin{pmatrix} 4 \\ -3 \end{pmatrix}$

Movement along the y-axis →



Vectors show both direction and magnitude

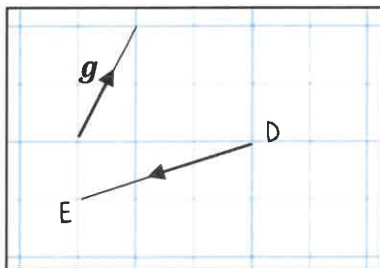
The arrow is pointing in the direction from starting point to end point of the vector

The direction is important to correctly write the vector

The magnitude is the length of the vector (This is calculated using Pythagoras theorem and forming a right-angled triangle with auxiliary lines)

The magnitude stays the same even if the direction changes

Understand and represent vectors



Vector notation $\overrightarrow{DE}$ is another way to represent the vector joining the point D to the point E

$$\overrightarrow{DE} = \begin{pmatrix} -3 \\ -1 \end{pmatrix}$$

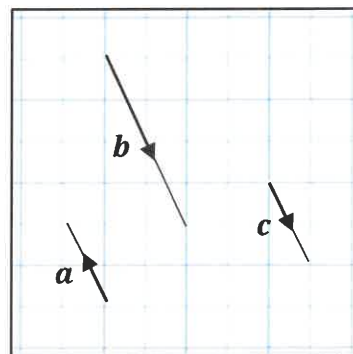
The arrow also indicates the direction from point D to point E

Vectors can also be written in bold lower case so $\mathbf{g}$ represents the vector

$$\mathbf{g} = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$$

Vectors multiplied by a scalar

Parallel vectors are scalar multiples of each other



$$\mathbf{b} = 2 \times \mathbf{c} = 2\mathbf{c}$$

Multiply $\mathbf{c}$ by 2 this becomes $\mathbf{b}$. The two lines are parallel

$$\mathbf{a} = -1 \times \mathbf{c} = -\mathbf{c}$$

The vectors $\mathbf{a}$ and $\mathbf{c}$ are also parallel. A negative scalar causes the vector to reverse direction

$$\mathbf{b} = -2 \times \mathbf{a} = -2\mathbf{a}$$

$$\mathbf{a} = \begin{pmatrix} -1 \\ 2 \end{pmatrix} \quad \mathbf{b} = \begin{pmatrix} 2 \\ -4 \end{pmatrix} \quad \mathbf{c} = \begin{pmatrix} 1 \\ -2 \end{pmatrix}$$

Addition of vectors

$$\overrightarrow{AB} = \begin{pmatrix} 3 \\ 1 \end{pmatrix}$$

$$\overrightarrow{BC} = \begin{pmatrix} 2 \\ -4 \end{pmatrix}$$

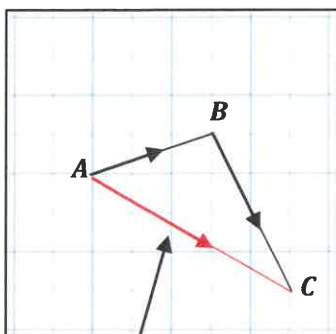
$$\overrightarrow{AB} + \overrightarrow{BC}$$

$$= \begin{pmatrix} 3 \\ 1 \end{pmatrix} + \begin{pmatrix} 2 \\ -4 \end{pmatrix}$$

$$= \begin{pmatrix} 3+2 \\ 1+(-4) \end{pmatrix}$$

$$\overrightarrow{AC} = \begin{pmatrix} 5 \\ -3 \end{pmatrix}$$

Look how this addition compares to the vector $\overrightarrow{AC}$



The resultant

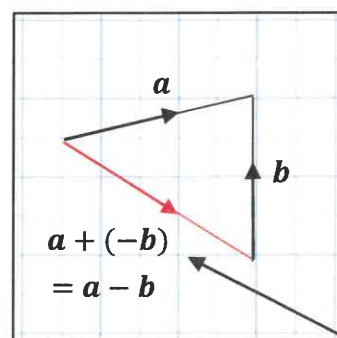
$$\overrightarrow{AB} + \overrightarrow{BC} = \overrightarrow{AC} = \begin{pmatrix} 5 \\ -3 \end{pmatrix}$$

Addition and subtraction of vectors

$$\mathbf{a} = \begin{pmatrix} 5 \\ 1 \end{pmatrix}$$

$$\mathbf{b} = \begin{pmatrix} 0 \\ 4 \end{pmatrix}$$

$$\mathbf{a} + (-\mathbf{b}) = \begin{pmatrix} 5+(-0) \\ 1+(-4) \end{pmatrix} = \begin{pmatrix} 5 \\ -4 \end{pmatrix}$$



$$\mathbf{a} + (-\mathbf{b}) = \mathbf{a} - \mathbf{b}$$

The resultant is $\mathbf{a} - \mathbf{b}$ because the vector is in the opposite direction to $\mathbf{b}$ which needs a scalar of -1

GQ

(August 2019)



Image from Hunter & Gatti for British GQ / Fair Use

GCSE Component 1: Exploring the Media

Focus areas:

- **Media language**
- **Representation**
- **Media contexts**

THE PRODUCT

- Launched in 1931, *GQ* began its life as a quarterly publication called Gentleman's Quarterly, aimed specifically at fashion industry insiders. Its popularity with customers caused its rebranding in 1967 to *GQ*.
- Produced by Condé Nast, today *GQ* is a multi-platform brand. Each issue is published in print and digitally; it has its own acclaimed website and apps.
- Published monthly, British *GQ* sells itself as *"The greatest magazine around. The men's magazine with an IQ. Whether it's fashion, sport, health, humour, politics or music, GQ covers it all with intelligence and imagination."*
- *GQ* is aimed at ABC1 men aged between 20 and 44, has a 212,000 monthly print readership, with online boasting over 2 million monthly unique users, and more than 2 million social media followers.
- Funded by magazine sales and advertising, *GQ* says that 88% of its audience have bought or plan to buy products they've seen in *GQ* and 93% of *GQ*'s audience own designer fashion.
- The limited colour palette of black, white, gold and orange create a sense of cohesion to the design, whilst also reinforcing the magazines messages of luxury, sophistication and masculinity.
- There is a long shot of footballer and celebrity Raheem Sterling, ensuring the magazine has star appeal for the audience.
- The cover price further reinforces this is a print magazine aimed at an ABC1 audience with disposable income.
- Consider the selection process that took place when creating this magazine cover – there was clearly a conscious decision to aim it at men who are interested in fashion, celebrity, politics, music and sport.
- Sterling is looking directly at the audience, seemingly making eye contact. This is a common convention of magazines and helps to add to the more personal approach of this format. His cool, relaxed gaze and slight smile looks down at the reader, suggesting he should be admired, looked up to.
- Sterling's leather combat trousers and boots are more high fashion than practical and connote luxury and masculinity, whilst also indicating to readers that *GQ* is a lifestyle magazine.
- Sterling's professional role as a footballer is anchored in the main cover line *"Guardian Angel. How Raheem Sterling saved football from itself"*. *GQ* calls Sterling a *"Guardian Angel"*, which has multiple connotations, including a sense of guidance and protection, suggesting he is looking after players and the values of the game by rooting out racism. The idea that he is doing morally good work is reinforced through his black angel wings and cross tattoo. This also frames him as a Proppian Hero, which is conventional for magazine cover stars.
- The top cover lines *"How to wear a broken suit"* and *"Why it's finally OK to own a belt bag"* should be considered when thinking about the magazine's target audience. In today's competitive society, which focuses heavily on aesthetics and where having the 'right' look is apparently very important, the reader begins to

PART 1: STARTING POINTS – Media language

How media language creates and communicates meaning

The typical codes and conventions of print magazines are used here to construct the *GQ* front cover:

- The branded masthead is conventionally placed in the top left-hand corner (Z-rule) and stands out with the choice of gold font, connoting luxury and exclusivity – traits that the brand associates with.

think of this magazine as a casual ‘how to’ guide when it comes to being a fashionable man.

- At the top right of the page, there is another cover line advertising a picture special from ‘GQ Heroes’. “*All the sizzle*” implies gossip and celebrity intrigue, while the term “exclusive” suggests the reader won’t be able to find it anywhere else and they need to purchase the magazine to be in on the secrets.
- On the right-hand side of the page the reader is offered some politics, “*Westminster has become a living nightmare. Andy Burnham’s Manchester masterplan.*” This hyperbolic language is a reference to the elected Mayor of Manchester, Andy Burnham, who is calling for more devolved power to be given to cities rather than held by the government in London. By including some serious journalism, as well as entertainment and fashion advice, the magazine is broadening its offering for its audience members.

Possible areas for further investigation:

- **Genre:** codes and conventions of magazine covers – layout, house style, by-lines. Genre conventions of magazines, their ever-changing nature and hybridity.
- **Narrative:** cover lines on the front cover tease people to want to read certain stories within the magazine (could be linked to Roland Barthes’ enigma codes), for example “*Speak no evil. Inside the most brutal dictatorship you’ve never heard of.*”

PART 2: STARTING POINTS – Representation and contexts

Social, cultural and historical contexts:

- Historically, British black men have been under-represented on magazine front covers due to systemic racism within the industry. In a 2018 study, completed by The Guardian, into glossy magazines, it was revealed that of 214 covers published by the 19 bestselling glossies in 2017, only 20 featured a person of colour. That’s 9.3%, whereas 13.7% of the UK are BAME. Of all the mainstream media outlets there has arguably been the smallest shift in magazine front covers representing a diverse range of people. However, sister magazine at Conde Nast, Vogue appointed editor Edward Enninful in 2017. He has turned one of the nation’s most respected fashion magazines into a celebration of all beauty – not excluding blackness but championing it. This, alongside the 2020 global anti-racism protests, has meant that recently there has been a wider range of ethnicities and races on the front of British *GQ*.
- In 1994, Mark Simpson – an author and journalist – coined the word ‘Metrosexual’. He is famously quoted as saying “*I had seen the future of masculinity and it was moisturised.*” In the early 2000s it became more socially acceptable for men to openly care about their looks, clothing and skincare regime. Men’s magazines embraced this through their content and advertising and according to the magazine, 80% of its readers buy at least one male grooming product per month. In 2014, Simpson then introduced the term ‘spornosexuals’, men who are extremely body focused. The selection of the *GQ* cover shot, with Sterling’s six-pack and muscles on show, even though he is a footballer, supports this concept.
- In December 2018, Raheem Sterling took to social media to highlight racism in the British press. Sterling screen-grabbed two MailOnline articles, which juxtaposed how his Manchester City teammates (Phil Foden and Tosin Adarabioyo) had been treated for buying their mums a house. Sterling used his platform to highlight this racial inequality in response to personally receiving racist abuse on the pitch from fans. That same week in 2018 saw a Tottenham Hotspur supporter arrested for throwing a banana skin at Pierre-Emerick Aubameyang and Motherwell’s Christian Mbulu received racial abuse. Since the social media post, Sterling has become a sought-after spokesperson for charities, activists and other social causes. Gary Lineker has called him “*perhaps the most influential player in the game*” off-field. The full *GQ* article by Alistair Campbell can be read on *GQ.co.uk* for free.
- *GQ Heroes* is an event aimed at “*luxury business and creative minds*”. Held annually in Oxfordshire, it has a programme of speakers

“who are shaping society and culture around us”.

Representations of ethnicity and gender:

- Using a hugely successful black cover star (Raheem Sterling is British Jamaican) as their dominant image, *GQ* is presenting a role model for its readers, someone to aspire to be like. Although Sterling’s sporting success might be outside of most reader’s possibilities, his work ethic, principles and desire to want to better himself is not.
- The choice to represent Sterling topless with his tattoos on show reinforces the stereotype of men as having to be hyper masculine, strong and muscular. The tattoos themselves represent different aspects of his identity – the cross on his chest illustrates his Christian faith, while the baby on his arm represents him as a father. The black wings represent him as a supernatural figure suggesting his extraordinary skills on the pitch. The wings, combined with the main cover line “*Guardian Angel*” and the low angle shot construct him as a protective figure, fighting for justice. His wide stance and the choice of costume represent him as a dominant, confident figure. Meanwhile the thick silver jewellery and watch represent his wealth and modern masculinity.
- The main cover line reads, “*How Raheem Sterling saved football from itself*”. The reader understands this to mean that he is a success on a much grander scale than just the pitch; he is an influencer. His thick silver jewellery reinforces the capitalist ideology that for a man to be thought of as successful you must be wealthy and make a lot of money.
- All the men named on the cover are represented as successful in their own field, which conforms to the genre conventions of glossy magazines. Andy Burnham (white British) is framed as having a “*masterplan*” for Manchester representing men as clever, powerful and forward-thinking. This is juxtaposed with the representation of Machine Gun Kelly (white American), whose life is described as “*insane, wild and totally nuts*”, however this extreme lifestyle is more what the reader would expect

from a rapper than a politician, so the cover lines serve to reinforce our preconceived ideas of these roles. The Machine Gun Kelly cover line is not judgemental, but celebratory, inviting readers in to see what his apparently crazy life is like.

- For modern men, there is a societal expectation that they must ‘have it all’ – health, wealth and strength – and the image of Sterling supports this as he epitomizes all three. Also, just like their female counterparts, the very essence of men’s lifestyle magazines is consumerism and so the images and cover lines will always seek to support this, informing men of what they supposedly need, “*How to wear a broken suit*” and also showing them what to covet, “*Why it’s finally ok to wear a belt bag*”. This is like the female lifestyle magazines that tell their readers how to be beautiful, get fit and dress well. The importance of body image and consumerism doesn’t change just because of gender.

Areas for further investigation:

- The choice of the two women – Gwendoline Christie and Adwoa Aboah – represented on the front cover.
- The changing perception of tattoos in media representations.

Quel sport fais tu? Quel est ton sport préféré?

9

Je joue (I play)	au foot au tennis au basket au badminton au rugby au volley au golf				
		depuis (for)	un an (a year) trois ans (three years) quatre mois (four months) quelques semaines (a few weeks)		
Je fais (I do)	du vélo / cyclisme (cycling) du roller (roller-skating) du footing (jogging) du canoë-kayak (canoeing/kayaking) du patinage (ice skating) de la boxe (boxing) de la danse de la musculation (weight lifting) de la natation de la planche à voile (windsurfing) de la voile (sailing) de l'escalade (climbing) de l'équitation (horse riding) des randonnées (walking/hiking)		tous les week-ends (every weekend) une fois par semaine (once a week) trois fois par mois (three times a month) tous les jours (every day) de temps en temps (from time to time)	J'aime beaucoup ça car (I really like it because) Ça me plaît énormément parce que (I like it a lot because) Ce que je trouve amusant est que (What I find fun is that)	c'est amusant c'est facile (it's easy) c'est ludique (it's fun) c'est rapide (it's quick) c'est bon pour le corps (it's good for the body) c'est bon pour le cœur (it's good for the heart) c'est bon pour le mental (it's good for your mind) c'est un sport qui demande de l'endurance (it's a sport that requires endurance) c'est un sport qui demande une bonne coordination (it's a sport that requires good coordination) ça m'aide à décompresser (it helps me to relax) ça me fait du bien (it does me good) j'oublie mes soucis (I forget my worries) c'est un sport en équipe (it's a team sport) travailler en équipe est motivant (working in a team is motivating) je préfère les sports individuels (I prefer individual sports) je prends l'air (I get some fresh air)

Est-ce que tu aimes la musique?

10

Je joue (I play)	du piano du saxophone du violon de la batterie (drums) de la flûte de la guitare	depuis (for)	un an (a year) trois ans (three years) quatre mois (four months) quelques semaines (a few weeks)	
J'adore Je me passionne pour (I'm mad about) Je suis fan de (I'm a fan of) Je n'aime pas du tout (I really don't like) J'ai horreur de (I can't stand) Je déteste	la musique pop la musique rock la musique classique le rap le hip-hop un peu de tout (a bit of everything)		ça me donne envie de (it makes me want to)	danser (dance) chanter (sing) bouger (move) pleurer (cry) dormir (sleep)
			ça me rend (it makes me)	joyeux/joyeuse (happy) content/contente (happy) calme (calm) énergique (energetic) triste (sad)
			j'aime j'adore	ses paroles (their lyrics) ses melodies (their tunes) son style (their style/look)
			il est	cool talentueux (talented)
			elle est	cool talentueuse (talented)
Mon chanteur/ma chanteuse préféré(e) est ... (my favourite singer is ...) J'adore la musique de ... (I love ...'s music)		car parce que puisque comme		

Que fais tu sur Internet?

11

Je suis passionné(e) de	photographie sport musique cinéma mode (fashion) genealogie (family history)	depuis (for)	un an (a year) trois ans (three years) quatre mois (four months) quelques semaines (a few weeks) toujours (always)	donc (so) alors (so)	j'ai créé (I created) un blog un station de radio une chaîne YouTube (a YouTube channel) une page Facebook	il y a six mois (six months ago)
Ça marche très bien (it's going well) Ça ne marche pas très bien (it's not going well)		car parce que puisque comme	j'ai beaucoup d'abonnés (I have lots of subscribers) je n'ai pas beaucoup d'abonnés (I don't have lots of subscribers) j'ai beaucoup de mentions «j'aime» (I have lots of likes) je n'ai pas beaucoup de mentions «j'aime» (I don't have many likes)			
L'année prochaine (Next year) L'été prochain (Next summer)	je vais travailler avec (I'm going to work with)	mon prof mon ami mon frère	car parce que puisque	il est plus (he is more) il est moins (he is less)	créatif (creative) patient organisé sérieux énergique (energetic) arrogant technophobe	que moi (than me)
		ma prof mon amie ma sœur		elle est plus (she is more) elle est moins (she is less)	créative patiente organisée sérieuse énergique (energetic) arrogante technophobe	

Tu préfères le cinéma ou la télévision?

13

Je suis passionnée de Je suis plutôt fan de Pour moi, j'aime bien le/la	cinéma télévision	car parce que puisque comme	c'est plus amusant (it's more fun) c'est pratique (it's practical) on peut sortir avec des copains (you can go out with friends) on peut se relaxer chez soi (you can relax at home)		
J'aime J'adore Je me passionne pour Je suis fou/folle des (I'm mad about) Je préfère Je n'aime pas Je déteste J'ai horreur des (I can't stand)	les documentaires (documentaries) les séries (series) les actualités (the news) les émissions de musique (music programmes) les émissions de sport (sports programmes) les émissions de télé-réalité (reality shows) les comédies		car ce sont (because they are) parce que ce sont	géniales amusantes formidables crédibles intéressantes débiles	
	les jeux télévisés (game shows) les films de gangsters les films d'action les films d'horreur les films de science-fiction les films d'amour			géniaux amusants formidables crédibles intéressants débiles	
J'admire ... (I admire ...) Je suis fan de ... (I am a fan of ...) Mon acteur préféré est ... (my favourite actor is ...) Mon actrice préférée est ... (my favourite actress is...)	parce que il est		le plus (the most) le moins (the least)	beau (handsome) intelligent talentueux (talented) élégant célèbre (famous) doué (gifted) chic (stylish/chic)	et je ne rate jamais ses films (and I never miss his/her films) et je vais voir son prochain film bientôt (and I'm going to see his/her next film soon) et chez lui/elle il y a très peu de vanité (and with him/her there is very little vanity)
	parce que elle est		la plus (the most) la moins (the least)	belle (beautiful) intelligente talentueuse (talented) élégante célèbre (famous) douée (gifted) chic (stylish/chic)	

La Familia

Me llamo María y tengo quince años.	My name is María and I am 15.
Tengo el pelo largo y rubio y no soy ni alto ni bajo.	I have long blond hair and I'm neither tall nor short.
Si tuviera la opción, quisiera tener un tatuaje pero lo haré cuando sea mayor.	If I had the option I would like to have a tattoo but I will do it when I'm older.
En mi familia somos cinco.	In my family there are five people.
En general diría que me llevo bien con mis padres aunque sean estrictos a veces.	In general I would say that I get on well with my parents even though they are strict sometimes.
Yo me parecezco mucho a mi madre. Las dos tenemos el pelo castaño.	I look a lot like my mum. We both have brown hair.
También nos llevamos superbien ya que tenemos mucho en común y siempre nos reímos.	Also, we get on really well because we have a lot in common and she always supports me.
Antes adoraba a mi hermana menor pero ahora la encuentro molesta y nunca guarda mis secretos.	Before I loved my little sister but now I find her annoying and she never keeps my secrets.
Para mí un buen amigo debía ser comprensivo y creo que es importante que tengamos intereses en común, por ejemplo la música.	For me a good friend should be understanding and I believe that it's important that we have common interests, for example music.
Creo que soy una buen amigo ya que siempre doy consejos buenos.	I believe that I am a good friend because I always support my friends and I give good advice.

A model text on family and relationships

7

padastro - stepdad hermanastra/a - stepbrother/sister tío - uncle primo - cousin (m) bisabuela - great-grandmother - niece hija - daughter nieta - granddaughter novia - girlfriend marido - husband mis parientes - my relatives	Un buen amigo es alguien que... - a good friend is someone who... te apoya - supports you te escucha - listens to you te conoce bien - knows you well te acepta como eres - accepts you as you are te quiere mucho - loves you a lot te da consejos - gives you advice te hace reír - makes you laugh Pienso que soy un buen amigo/una buena amiga porque... - I think I am a good friend because...	A good friend	
Soy - I am Es - he/she is Son - they are	alto - tall bajo - short gordo - fat delgado - slim	ojos - eyes ojos azules - blue ojos marrones - brown ojos verdes - green	ojos azules - blue ojos marrones - brown ojos verdes - green
Tengo - I have Tiene - he/she has Tienen - they have	El pelo - hair La piel blanca/morrena - fair/dark skin Pecas - freckles	ojos azules - blue ojos marrones - brown ojos verdes - green	ojos azules - blue ojos marrones - brown ojos verdes - green
Llevo - I wear/have Lleva - he/she wears/has Llevamos - we wear/have	ojos azules - blue ojos marrones - brown ojos verdes - green	ojos azules - blue ojos marrones - brown ojos verdes - green	ojos azules - blue ojos marrones - brown ojos verdes - green
Me llevo bien con... - I get on well with Me divierto con... - I have fun with Echo de menos a... - I miss	ojos azules - blue ojos marrones - brown ojos verdes - green	ojos azules - blue ojos marrones - brown ojos verdes - green	ojos azules - blue ojos marrones - brown ojos verdes - green
No me llevo bien con... - I don't get on well with Me peleo con... - I argue with Estoy harta de... - I am fed up of	ojos azules - blue ojos marrones - brown ojos verdes - green	ojos azules - blue ojos marrones - brown ojos verdes - green	ojos azules - blue ojos marrones - brown ojos verdes - green
Wow!	ojos azules - blue ojos marrones - brown ojos verdes - green	ojos azules - blue ojos marrones - brown ojos verdes - green	ojos azules - blue ojos marrones - brown ojos verdes - green

ser (to be)	estar (to be)	tener (to have)	ir (to go)
soy	estoy	tengo	voy
eres	estás	tienes	vas
es	está	tiene	va
somos	estamos	tenemos	vamos
sois	estáis	tenéis	vais
son	están	tienen	van

G The present continuous

Page 206

estar (to be) present participle

(yo)	estoy	
(tú)	estás	mirando
(él/ella/usted)	está	bebiendo
(nosotros/as)	estamos	escribiendo
(vosotros/as)	estáis	
(ellos/ellas/ustedes)	están	

To form the present participle, take the infinitive, remove the **-ar, -er** or **-ir** and add the endings: **-ando, -iendo, -iendo**.

Estoy buscando canciones. I am **looking** for songs.

Está jugando al fútbol. He/She is **playing** football.

Irregular present participles include: leer → **leyendo**,
dormir → **durmiendo**

G Ser and estar

Page 210

Ser is used for:

Description: **Soy** alto y bastante delgado.

Origin: **¿Eres** de Colombia?

Character: **Es** muy honesto.

Time: **Son** las cinco de la tarde.

Occupation: **Somos** mecánicos.

Relation: **¿Sois** mis primos, no?

Estar is used for:

Position: **Estoy** de pie.

Location: **¿Estás** en Madrid?

Action: **Está** estudiando.

Condition: **Estamos** cansados. **¿Estáis** bien?

Emotion: **Están** contentos.

G Possessive adjectives

Most possessive adjectives have two forms, singular and plural.

	singular	plural
my	mi	mis
your (singular)	tu	tus
his/her/its	su	sus
our	nuestro/nuestra	nuestros/nuestras
your (plural)	vuestro/vuestra	vuestros/vuestras
their	su	sus

Nuestro (our) and vuestro (your – plural) also have masculine and feminine forms:

nuestros hermanos our brothers

nuestras hermanas our sisters

For usted (you – polite, singular) and ustedes (you – polite, plural) use su/sus to mean 'your'.

G

Reflexive verbs for relationships

Page 201

Some verbs for describing relationships are reflexive in Spanish.

llevarse (to get on)

me llevo

te llevas

se lleva bien con...

nos llevamos mal con...

os lleváis

se llevan

Me llevo bien con mis padres. I get on well with my parents.

These include: **pelearse** (to argue) and **divertirse** (to have fun).

Me peleo con mi hermano. I argue with my brother.

Me divierto con mi mejor amiga. I have fun with my best friend.

Español – Y10 – Term 3

GCSE Physical Education – Components of Fitness

Health – A state of complete mental, physical and social well-being (not merely the absence of disease or infirmity).

Fitness - The capacity to carry out life's activities without getting too tired.

Well-being – a feeling or mental state of being contented, happy, prosperous and healthy.

Sedentary – a lifestyle that is inactive and involves much sitting down

Relationship between these:

- Regular exercise increases general **health**, **fitness** and **well-being**.
- High levels of **fitness** can in turn have a positive impact on **well-being** and **sedentary** lifestyles.



Health Related Components of Fitness

Skill Related Components of Fitness

Component	Definition	Sporting Example
Muscular Strength	The ability of a muscle to exert force for a short period of time.	
Muscular Endurance	The ability to use voluntary muscles, over long periods of time without getting tired.	
Flexibility	The range of movement at a joint.	
Cardiovascular Endurance (stamina) VO2 Max O2 intake per minute	The ability of the heart and circulatory system to continuously exercise without tiring (for a long period of time).	

Component	Definition	Sporting Example
Coordination	The ability to move different limbs at different times or to do more than one task at a time effectively.	
Reaction Time	The ability to react quickly in sport situations to outwit your opponent or outspurt another athlete	
Agility	The ability to change direction under control, whilst maintaining speed, balance and power.	
Balance	The ability to keep your body mass or centre of mass over a base of support.	
Speed	The ability to move the body quickly.	
Power	The ability to combine speed and strength.	

[illegible]

Definition/notes/concept

Keywords:

GCSE Physical Education – Aerobic/Anaerobic and long term effects of exercise

Aerobic and Anaerobic exercise – two methods of energy production by the body (Energy: the capacity to do work)
Two factors determine which method is used: **Intensity & duration**

Aerobic energy production – takes place in the presence of oxygen



Exercise intensity is moderate/low for a sustained period of time. *i.e. marathon runner/endurance cycling*



By products are released as sweat and CO2 exhaled.

Cardiovascular system

Cardiac equation – Cardiac output (Q) = Stroke Volume (SV) x Heart Rate (HR)

Long term effects of exercise

- Cardiac hypertrophy – (left ventricle) this is the increased size of the heart due to training. This impacts on the cardiac equation above.

Lower resting HR - **Increased maximum Q** - **Increased SV**

- Increased elasticity in the walls of arteries and veins – more efficient constriction and dilation.
- Increased number of red blood cells – has capacity to carry more oxygen to working muscles.
- More efficient ‘vascular shunt’
- More capillaries
- Lower blood pressure at rest



Skeletal system

Long term effects of exercise

- Increased bone density – strong bones reduce the risk of injuries.
- Increased strength of ligaments and tendons – allows the body to change direction quickly without injury occurring.



Anaerobic energy production – takes place in the absence of oxygen



Intensity of anaerobic activity is high as muscle contraction are powerful & quick *i.e. 100m sprinter/long jump*

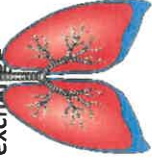


By product (lactic acid) builds up and causes fatigue.

Respiratory system

Long term effects of exercise

- Increased capillarisation – better blood supply around the alveoli.
- Increased number of alveoli – results in better gaseous exchange (oxygen delivery and waste product removal)
- Increased strength of diaphragm and intercostal muscles – this increased tidal volume and vital capacity.
- Increase in vital capacity



Muscular system

Long term effects of exercise

- Muscular hypertrophy – increase in muscle size and strength/endurance.
- Increase size and number of mitochondria – produces more energy aerobically.
- Increased tolerance to lactic acid – reduces muscle fatigue.



[illegible]

Definition/notes/concept

Keywords:

GCSE Physical Education – Fitness Testing

Muscular Strength

Test: Hand Grip Dynamometer Test

Protocol: Grip the dynamometer in one hand. Start with your hand up and bring down to side while pulling in handle. No swinging your hand.



Advantages	Disadvantages
• Simple and easy to complete	• Only one size of dynamometer which may affect reading. • Focuses solely on forearm strength.

Muscular Endurance

Test: sit up test (metronome)

Protocol: Complete full sit ups in time to the beat on the recording as possible resting in the “up” position



Advantages	Disadvantages
• Simple test to complete • Minimal equipment needed.	• Difficult to assess whether each repetition is performed correctly. Difficult to accurately measure large groups.

Flexibility

Test: Sit and Reach Test

Protocol: Sit with legs straight out in front and soles of feet against box/table. Reach forward without bending knees. No jerking movements.



Advantages	Disadvantages
• Quick and easy to perform. • Data table readily available for comparison	• Can cause injury if not fully warmed up appropriately. • Only measures flexibility of lower back and hamstrings.

Cardiovascular Fitness (Aerobic Endurance)

Test: 12 min Cooper Run

Protocol: Continuously run/swim for 12 minutes. Distance recorded.



Advantages	Disadvantages
• Minimal equipment needed • Test can be self administered.	• Inaccuracy of heart rate measurements • Motivation dependant

Test: Multi-Stage Fitness Test

Protocol: Shuttle run continuously for 20 metres. Record the level and point that you cannot continue at that pace for.

Agility

Test: Illinois Agility Test

Protocol: Start lying down at the start line. Complete course as quick as possible (10m x 5m – 4 central cones)



Advantages	Disadvantages
• Simple and easy to complete	• Motivation dependant / Timing errors.

Speed

Test: 30m Sprint Test

Protocol: Start from stationary position. Complete distance in the quickest possible time. Time is stopped when chest crosses the line.

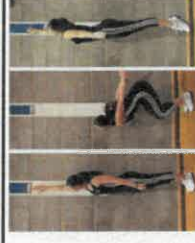


Advantages	Disadvantages
• Quick test to complete. • Minimal equipment needed and can be performed anywhere with a flat 50m run.	• Running surfaces/weather conditions can affect the results. • Inaccuracies with stopwatch usage.

Power

Test: Vertical jump Test

Protocol: Stand next to wall and mark an initial reach while feet are flat on the ground. Standing jump to reach as high as possible. Measure distance from first mark to second.



Advantages	Disadvantages
• Quick and easy to perform. • Easy to complete with large groups.	• Technique plays a large role in successful completion.

Reliability /Validity

Validity relates to whether the test actually measures what it sets out to measure.



Reliability is a question of whether the test is accurate. It is important to ensure that the procedure is correctly maintained for ALL individuals.

Results can be improved:

- By using experienced testers & calibrating equipment
- Ensuring performers have the same level of motivation to complete each test
- Repeatedly test to avoid human error (x3)

[illegible]

Definition/notes/concept

Keywords:

GCSE Dance Knowledge Organiser – A Linha Curva

Stimulus Brazilian culture Celebrating the Brazilian way of life	Aural Setting Played live. Samba percussion band. Repetitive drums. Vocals from dancers at the beginning (male) and the middle (all) Very loud	Dance Style Capoeira, samba and contemporary	Choreographer Itzik Galili	Costume Black mesh tops, bright coloured neon hot pants (lycra), matching zip	Performance Environment End Stage	Lighting Overhead. Chequerboard, bright colours, white shaft
Themes Carnival, relationships between men and women Choreographic Intention Just have fun With contradictions How Brazilian men communicate with women – hunting in packs Men showing off/competing with each other	Dancers 28 15 male 13 female Choreographic Approach Worked collaboratively with the dancers. Motifs created using improvisation. Dancers were created a solo of their favourite moves within an allocated square. Motifs and sequences were named after the dancers. Motifs and sequences then learnt by everyone to create ensemble work.	Costume Contributions Stimulus – Brazilian way of life – colours of the shorts reflect the colours of Brazilian carnivals Intention – Just have fun – the costumes are tight fitted allowing the movement to be performed to its maximum, enhancing the ‘just have fun’ intention. Mood – colours of the costumes reflect a bright and happy mood. Complements other components – colours of the shorts complement the colours of the lighting Sculpts body – costumes are tight fitting sculpting the body Uniformity – costumes are the same creating uniformity Gender – metal collars highlight the male gender in the opening. Slashes in the torso highlight their masculinity.				
		Set Contributions Stimulus – Brazilian way of life – colours reflect colours of Brazil and carnivals Intention – Just have fun – checkerboard moving erratically around the stage as the dancers keep up with the pre-programmed lighting enhances the fun aspect. Mood – Lighting reflected from the collars enhances an unpredictable and fun mood Highlights dancer – Spotlights used in solo and duet sections highlight each dancer Highlights dance space – Checkerboard creates a dance space which each dancer must stay in Sculpts body – Lighting sculpts the bodies of the dancers and enhances movement Geographic context – colours connote the colours of the Brazilian flag – green, blue, yellow Complements other components – colours of light complement the colours of the costumes				
		Aural Setting Contributions Stimulus – Brazilian culture – Samba bands portray traditional Brazilian style music Intention – Just have fun – rapid tempo and use of vocals where dancers ‘feel the moment’ creates a sense of fun and excitement. Mood – High energy tempo creates a happy and vibrant mood Complements other components – Use of samba style music complements the carnival coloured lighting and carnival inspired costumes. Geographical context – Live samba band creates a sense of being immersed in Brazil Climax – Re-introduction of fast samba beats with vocals after narrative section creates a sense of climax Contrast – narrative section in the middle with slower, deeper and longer notes creates a contrast from the rapid drumming of the ensemble sections				
		Set No set: black tabs and black floor Raised platform at the back of the stage to elevate the samba band Skateboards used to travel across the stage				

GCSE PHOTOGRAPHY

Develop ideas through investigations informed by contextual and other sources, demonstrating analytical and cultural understanding.

Plenty of photos and/o shoots. Successful work is likely to be cohesive (ie: similar, related, planned, etc.) and genuinely influenced by the work of other photographers, artists, designers, or craftspeople.

AO1



Refine ideas through experimenting and selecting appropriate resources, media, materials, techniques and processes.

Choose the right tools resources. Demonstrate technical skills using your camera, the darkroom or Photoshop. Show you can manage and experiment with materials and techniques well. Use your skills to improve your work.

AO2



AO1 Contextual understanding	AO2 Experimenting and refining	AO3 Reflective recording	AO4 Personal presentation
Developing your ideas	Creative making	Observation and evaluation	Final outcomes
Make mindmaps, collect inspiring images on moodboards. Research lots of relevant photographers. Make comparisons between your images and the work of other photographers. Analyse photographs using KITE. Make this a creative presentation. Prepare photoshoot plans, showing ideas and intentions, with thumbnail sketches, eg: as storyboards. Take plenty of photos and/or photoshoots. Successful work is likely to be cohesive (ie: <i>similar, related, planned, etc.</i>) and genuinely influenced by the work of other photographers, artists, designers, or craftspeople. Explain your ideas regularly.	Choose a range of tools, resources and techniques. Explore and experiment with them. Show technical skill using your camera, the darkroom or Photoshop. Demonstrate you can manage and experiment with materials and techniques well. Show 2-3 alternative edits for each image. Present all images you make or edit (do not delete!!) Use your skills to improve and refine your work. Show the stages of your editing, not just the final result. Revisit images to improve and refine them further.	Draw sketches for photoshoot ideas and plans. Take lots of photographs for each shoot. Present all photographs taken (do not delete any!) Show technical skill using your camera. Experiment with camera techniques. Annotate your work. Use WWW and EBI for a page of work rather than individual images. Draw (or trace) composition diagrams. Compare and contrast different versions of your own photos, as well as with the work of others. Evaluate your work and suggest next steps to improve your pictures or project. Create a rating system for your work, eg: a yellow sticker beside your favourite edits.	Your project should start and finish, with linked stages in between. Extend your rating system with red stickers for your best pictures from each photoshoot. Make a small group of 'best-of' photos for each photoshoot after editing. Complete your project with a set of images that are related to previous edits and the photographers you have looked at. Make prints, use mixed media or assemble 3D objects. Your finals should have a similar theme or subject matter, and use similar techniques.



Photography Assessment Objectives

Record ideas, observations and insights relevant to your intention in visual and/or other forms, demonstrating an ability to reflect on their work in progress.

Take photographs. Make mindmaps, collect images, annotate your work. Compare and contrast different versions of your photos, as well as with the work of others. Evaluate your work and suggest next steps to improve your project.

AO3

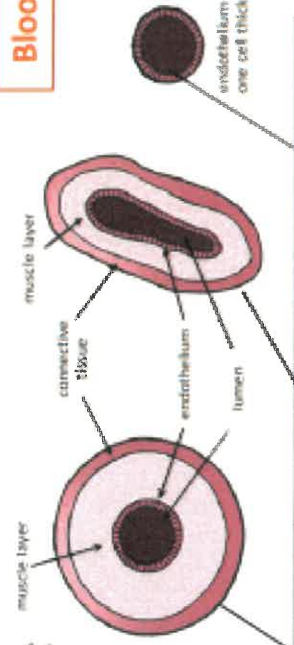


Present a personal, informed and meaningful response demonstrating analytical and critical understanding, realising intentions and - where appropriate, making connections between visual, written, oral or other elements.

Complete your project, with a set of prints that are related to previous work (ie: they don't just suddenly appear!). Make prints that have a similar theme or use similar techniques.

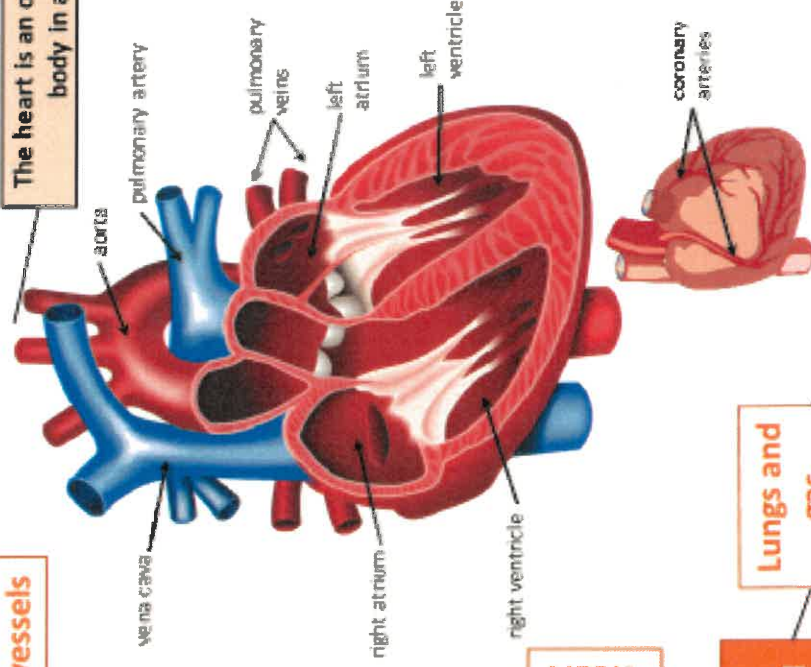
AO4

Blood vessels



Artery	Vein	Capillary
Carry blood away from the heart	Carry blood to the heart	Connects arteries and veins
Thick muscular walls, small lumen, carry blood under high pressure, carry oxygenated blood (except for the pulmonary artery).	Thin walls, large lumen, carry blood under low pressure, have valves to stop flow in the wrong direction, carry deoxygenated blood (except for the pulmonary vein).	One cell thick to allow diffusion, carry blood under very low pressure.

Heart



Different structure in the heart have different functions		
Right ventricle	Pumps blood to the lungs where gas exchange takes place.	
Left ventricle	Pumps blood around the rest of the body.	
Pacemaker (in the right atrium)	Controls the natural resting heart rate. Artificial electrical pacemakers can be fitted to correct irregularities.	
Coronary arteries	Carry oxygenated blood to the cardiac muscle.	
Heart valves	Prevent blood in the heart from flowing in the wrong direction.	

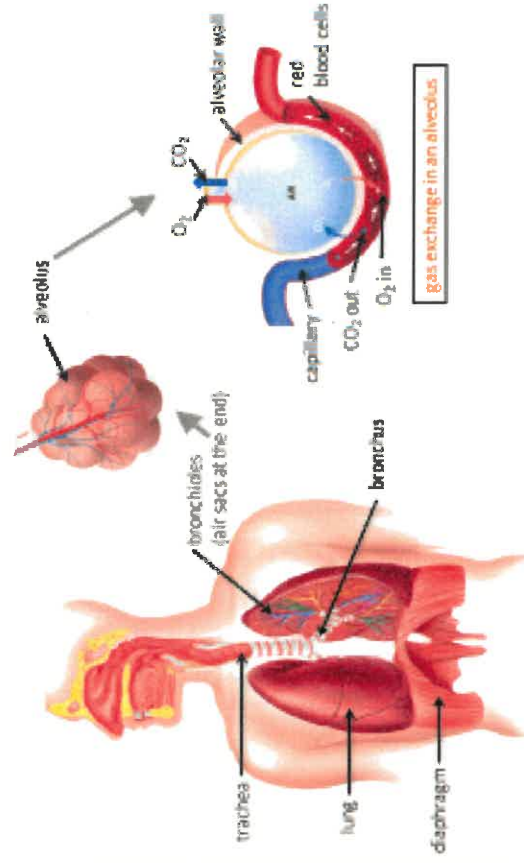
Blood

Blood is a tissue consisting of plasma, in which blood cells, white blood cells and platelets are suspended

Plasma (55%)	Pale yellow fluid	Transports CO ₂ , hormones and waste.
Red blood cells (45%)	Carries oxygen	Large surface area, no nucleus, full of haemoglobin.
White blood cells (<1%)	Part of the immune system	Some produce antibodies, others surround and engulf pathogens.
Platelets (<1%)	Fragments of cells	Clump together to form blood clots.

Lungs and gas exchange

Trachea	Carries air to/from the lungs	Rings of cartilage protect the airway.
Bronchioles	Carries air to/from the air sacs (alveoli)	Splits into multiple pathways to reach all the air sacs.
Alveoli	Site of gas exchange in the lungs	Maximises surface area for efficient gas exchange.
Capillaries	Allows gas exchange between into/out of blood	Oxygen diffuses into the blood and carbon dioxide diffuses out.



The heart pumps low oxygen/high carbon dioxide blood to the lungs

The heart is an organ that pumps blood around the body in a double circulatory system

Disease	Cause	Effect	Treatment
Coronary heart disease (CHD)	<i>A build up for fatty substances in the coronary arteries (atherosclerosis)</i>	Oxygen-ated blood cannot get to the cardiac muscle.	Stents: inserted into the blocked artery to open it up. Stents: lower harmful cholesterol.
Faulty heart valves	<i>Valves don't open or close properly</i>	Blood can leak or flow in the wrong direction	Biological valve transplant or a mechanical valve can be inserted

Cancer

Non-communicable diseases

The result of changes in DNA that lead to uncontrolled growth and division

Benign tumour	Contained in one area of the body (usually by a membrane) – not cancer.
Malignant tumour	Invade tissues and spread to different parts of the body to form secondary tumours.

Some cancers have genetic risk factors.

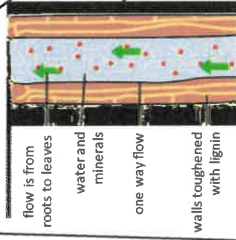
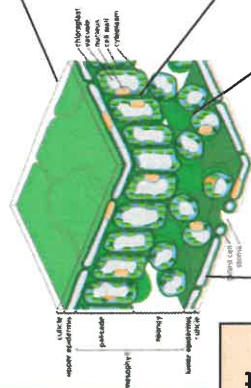
Carcinogens and ionising radiation increase the risk of cancer by changing/ damaging DNA

Risk factors for heart/lung disease and certain types of cancer include
drinking alcohol, diet, obesity and smoking

These risks factors can also affect the brain, liver and the health of unborn babies

Plant organ systems

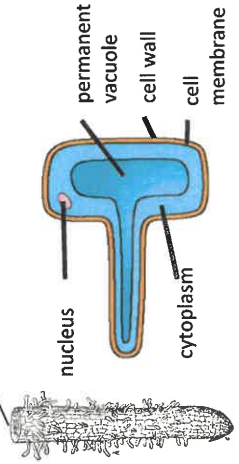
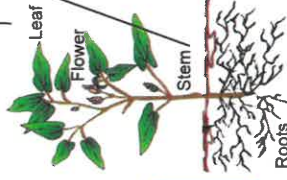
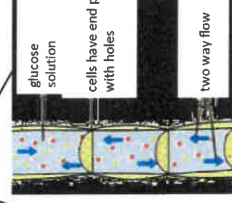
The roots, stem and leaves form a plant organ system for transport



xylem



phloem



Plant tissues

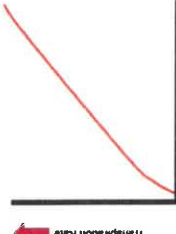
AQA GCSE ORGANISATION part 3

Epidermal tissues	<i>Waxy cuticle (top layer of the leaf)</i>	Reduces water loss from the leaf
Palisade mesophyll	<i>Guard cells and stomata</i>	Guard cells open and close the stomata to control water loss and allow for gas exchange (oxygen and carbon dioxide).
Spongy mesophyll	<i>Palisade cells</i>	Cells near the top surface of the leaf that are packed with chloroplasts that contain chlorophyll. Both adaptations maximize photosynthesis.
xylem	<i>Air spaces in the leaf between cells</i>	Increased surface area for gas exchange so that carbon dioxide can diffuse into photosynthesising cells.
phloem	<i>Hollow tubes strengthened by lignin adapted for the transportation of water in the transpiration stream</i>	Allows transport of water and mineral ions from the roots to the stem and the leaves.
Meristem tissue	<i>Cell sap moves from one phloem cell to the next through pores in the end walls</i>	Transports dissolved sugars from the leaves to the rest of the plant for immediate use or storage (translocation).
	<i>New cells (roots and shoot tips) are made here including root hair cells</i>	Root hair cells have an increased surface area for the uptake of water by osmosis, and mineral ions by active transport.

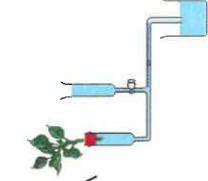
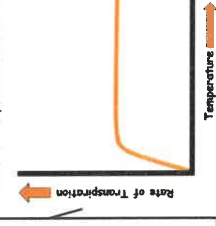
Effect of Humidity on Plant Transpiration



Effect of Wind Velocity on Plant Transpiration



Effect of Temperature on Plant Transpiration



A potometer is used to measure the amount of water lost over time (rate of transpiration)

Transpiration

The rate at which water is lost from the leaves of a plant. The transpiration stream is the column of water moving through the roots, stem and leaves

Temperature, humidity, air movement and light intensity affect the rate of transpiration.

Pathogens are identified by white blood cells by the different proteins on their surfaces **ANTIGENS**.

Antigens (surface protein)

Nose
Nasal hairs, sticky mucus and cilia prevent pathogens entering through the nostrils.

Trachea and bronchus (respiratory system)
Lined with mucus to trap dust and pathogens. Cilia move the mucus upwards to be swallowed.

Stomach acid
Stomach acid (pH1) kills most ingested pathogens.

Skin
Hard to penetrate waterproof barrier. Glands secrete oil which kill microbes

The human body has several non specific ways of defending itself from pathogens getting in

Non-specific defence systems

Immune system

White blood cells are part of the immune system

Human defence systems

Pathogens may infect plants or animals and can be spread by direct contact, water or air

Phagocytes
Phagocytes engulf the pathogens and digest them.

Lymphocytes
Specific antibodies destroy the pathogen. This takes time so an infection can occur. If a person is infected again by the same pathogen, the lymphocytes make antibodies much faster.

Antibody production

Antitoxin production
Antitoxin is a type of antibody produced to counteract the toxins produced by bacteria.

AQA GCSE INFECTION AND RESPONSE part 1

Plants have several ways of defending themselves from pathogens and animals

Physical
Thick waxy layers, cell walls stop pathogen entry

Mechanical
Thorns, curling up leaves to prevent being eaten

Chemical
Antibacterial and toxins made by plant

Detection and identification of plant diseases (bio only)

Detection

Stunted growth
Reference using gardening manual or website, laboratory test for pathogens, testing kit using monoclonal antibodies.

Spots on leaves

Area of decay

growths

Malformed stem/leaves

Discolouration

Presence of pests

Nitrate ions needed for protein synthesis – lack of nitrate = stunted growth.

Magnesium ions needed to make chlorophyll – not enough leads to chlorosis – leaves turn yellow.

Bacteria may produce toxins that damage tissues and make us feel ill

Pathogens

Pathogens are microorganisms that cause infectious disease

Viruses live and reproduce inside cells causing damage

Pathogen	Disease	Symptoms	Method of transmission	Control of spread
Virus	Measles	Fever, red skin rash.	Droplet infection from sneezes and coughs.	Vaccination as a child.
Virus	HIV	Initially flu like systems, serious damage to immune system.	Sexual contact and exchange of body fluids.	Anti-retroviral drugs and use of condoms.
Virus	Tobacco mosaic virus	Mosaic pattern on leaves.	Enters via wounds in epidermis caused by pests.	Remove infected leaves and control pests that damage the leaves.
Bacteria	Salmonella	Fever, cramp, vomiting, diarrhoea.	Food prepared in unhygienic conditions or not cooked properly.	Improve food hygiene, wash hands, vaccinate poultry, cook food thoroughly.
Bacteria	Gonorrhoea	Green discharge from penis or vagina.	Direct sexual contact or exchange of body fluids.	Use condoms. Treatment using antibiotics.
Protists	Malaria	Recurrent fever.	By an animal vector (mosquitoes).	Prevent breeding of mosquitoes. Use of nets to prevent bites.
Fungus	Rose black spot	Purple black spots on leaves.	Spores carried via wind or water.	Remove infected leaves. Spray with fungicide.

Viruses	Bacteria (prokaryotes)	Protists (eukaryotes)	Fungi (eukaryotes)
e.g. cold, influenza, measles, HIV, tobacco mosaic virus	e.g. tuberculosis (TB), Salmonella, Gonorrhoea	e.g. dysentery, sleeping sickness, malaria	e.g. athlete's foot, thrush, rose black spot
DNA or RNA surrounded by a protein coat	No membrane bound organelles (no chloroplasts, mitochondria or nucleus). Cell wall. Single celled organisms	Membrane bound organelles. Usually single celled.	Membrane bound organelles, cell wall made of chitin. Single celled or multicellular

An organism will receive all the energy it needs for living processes as a result of the energy transferred from respiration	For movement		To enable muscles to contract in animals.
	For keeping warm		To keep a steady body temperature in a cold environment.
	For chemical reactions		To build larger molecules from smaller one.

During long periods of vigorous activity muscles become fatigued and stop contracting efficiently

Response to exercise

During exercise the human body reacts to increased demand for energy	Heart rate increases	Top pump oxygenated blood faster to the muscle tissues and cells.
	Breathing rate and breath volume increase	This increases the amount of oxygen entering the blood stream.

Metabolism is the sum of all the reactions in a cell or the body

Metabolism

Metabolism	The energy transferred by respiration in cells is used by the organism for the continual enzyme controlled processes of metabolism.	Conversion of glucose to starch, glycogen and cellulose.
		The formation of lipid molecules from a molecule of glycerol and three molecules of fatty acid.
		The use of glucose and nitrate ions to form amino acids which in turn are used to synthesise proteins.
	Respiration	Breakdown of excess proteins to form urea for excretion.

The extra amount of oxygen required to remove all lactic acids from cells is called the oxygen debt



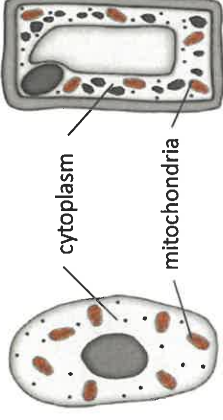
Response to exercise HT only

Respiration

AQA GCSE BIOENERGETICS part 2



Cellular respiration is an exothermic reaction which is continuously occurring in all living cells



animal cell

plant cell



Electron micrograph of a mitochondrion

Anaerobic respiration

Respiration when oxygen is in short supply. Occurs during intensive exercise

During hard exercise, muscle cells are respiring so fast that blood cannot transport enough oxygen to meet their needs.

Glucose is partially oxidised to produce lactic acid which builds up in muscle tissue causing them to become painful and fatigued.

glucose → lactic acid

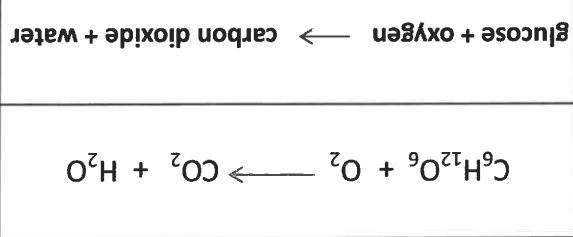
Anaerobic respiration releases a much smaller amount of energy than aerobic respiration.

The incomplete oxidation of glucose causes a build up of lactic acid and creates an oxygen debt

Aerobic respiration

Respiration with oxygen. Occurs inside the mitochondria continuously

Glucose is oxidised by oxygen to transfer the energy the organism needs to perform its functions.



Aerobic respiration releases a large amount of energy from each glucose molecule

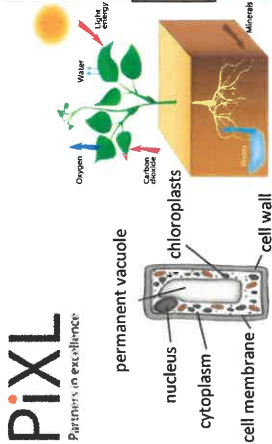
Anaerobic respiration in plant and yeast cells

The end products are ethanol and carbon dioxide. Anaerobic respiration in yeast cells is called fermentation

glucose → ethanol + carbon dioxide

This process is economically important in the manufacture of alcoholic drinks and bread.



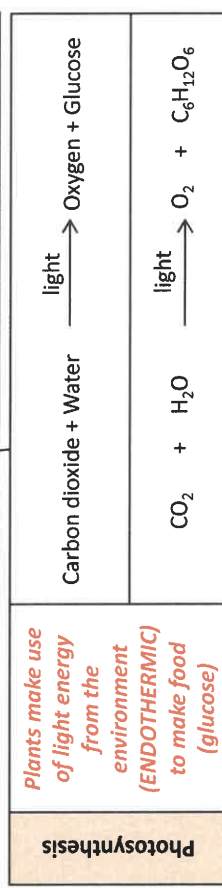


Respiration, stored as insoluble starch, fats or oils for storage, cellulose for cell walls, combine with nitrates from the soil to form amino acids for protein synthesis

Plants use the glucose produced in photosynthesis in a variety of ways

Photosynthetic reaction

The plant manufactures glucose from carbon dioxide and water using energy transferred from the environment to the chloroplasts by light



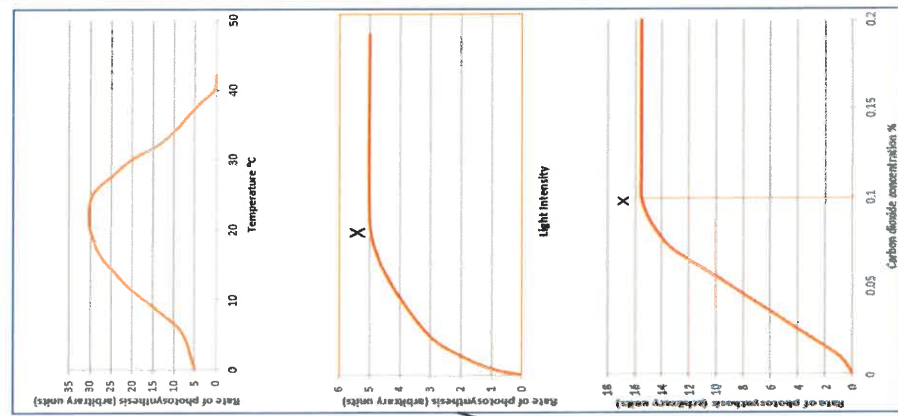
The rate of photosynthesis is affected by temperature, light intensity, carbon dioxide concentration, and the amount of chlorophyll

Factors affecting the rate of photosynthesis			
Factor	How the rate is affected	Limiting factors (why the rate stops going up)	
Temperature	As the temperature of the environment the plant is in increases rate of photosynthesis increases (up to a point) as there is more energy for the chemical reaction.	Photosynthesis is an enzyme controlled reaction. If the temperature increases too much, then the enzymes become denatured and the rate of reaction will decrease and stop	
Light intensity	Light intensity increases as the distance between the plant and the light sources increases. As light intensity increases so does the rate of photosynthesis (up to a point) as more energy is available for the chemical reaction.	At point X another factor is limiting the rate of photosynthesis. This could be carbon dioxide concentration, temperature or the amount of chlorophyll	
Carbon dioxide concentration	Carbon dioxide is needed for plants to make glucose. The rate of photosynthesis will increase when a plant is given higher concentrations of carbon dioxide (up to a point).	At point X another factor is limiting the rate of photosynthesis. This could be light intensity, temperature or the amount of chlorophyll	
Amount of chlorophyll	Chlorophyll is a photosynthetic pigment that absorbs light and allows the reaction between water and carbon dioxide to occur (photosynthesis)	Another factor could limit the rate of photosynthesis. This could be light intensity, temperature or the carbon dioxide concentration	

Heating	Used to provide optimum temperatures for maximum plant growth.
Artificial lighting	Enhances the natural sunlight especially overnight and on cloudy days.
Extra carbon dioxide	Gas can be pumped into the air inside the greenhouse.

AQA GCSE BIOENERGETICS part 1

Rate of photosynthesis

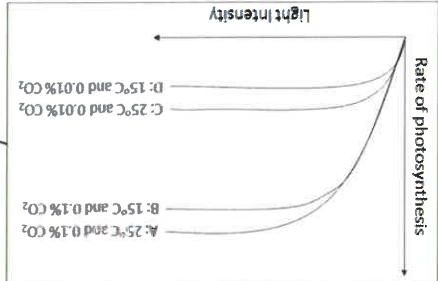


Light intensity obeys the inverse square law. This means that if you double the distance between the plant and the light source you quarter the light intensity

Graph lines C and D:
If temperature is increased by 10°C then a slight increase in rate of photosynthesis occurs.

Graph lines A and D:
If carbon dioxide concentration is increased the rate of photosynthesis increases significantly up to a point.

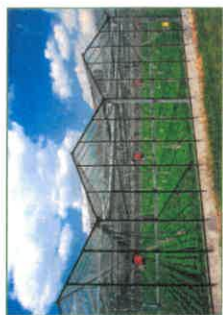
Graph line A: Rate could be limited by temperature and/or amount of chlorophyll. Plant tissue can be damaged when carbon dioxide concentrations exceed 0.1%



Graph Lines A and B:
If carbon dioxide concentration is increased from 0.01% to 0.1% then a large increase in rate occurs up to a point.

Explain graphs of two or three factors and decide which is the limiting factor

Rate of photosynthesis HT Only



Growers must balance the economics of additional costs of controlling the conditions to maximise photosynthesis with making a profit.

Oxidation is **L**oss (of electrons) **R**eduction is **G**ain (of electrons)

HT ONLY: Reactions between metals and acids are redox reactions as the metal donates electrons to the hydrogen ions. This displaces hydrogen as a gas while the metal ions are left in the solution.

Ionic half equations (HT only)		
For displacement reactions	<i>Ionic half equations show what happens to each of the reactants during reactions</i>	For example: The ionic equation for the reaction between iron and copper (II) ions is: $\text{Fe} + \text{Cu}^{2+} \rightarrow \text{Fe}^{2+} + \text{Cu}$
		The half-equation for iron (II) is: $\text{Fe} \rightarrow \text{Fe}^{2+} + 2\text{e}^-$
		The half-equation for copper (II) ions is: $\text{Cu}^{2+} + 2\text{e}^- \rightarrow \text{Cu}$

Acid name	Salt name
<i>Hydrochloric acid</i>	Chloride
<i>Sulfuric acid</i>	Sulfate
<i>Nitric acid</i>	Nitrate

Oxidation and reduction in terms of electrons (HT ONLY)

Neutralisation of acids and salt production

sodium hydroxide + hydrochloric acid $\rightarrow$ sodium chloride + water
calcium carbonate + sulfuric acid $\rightarrow$ calcium sulfate, + carbon dioxide + water

Neutralisation	Acids can be neutralised by alkalis and bases	An alkali is a soluble base e.g. metal hydroxide. A base is a substance that neutralises an acid e.g. a soluble metal hydroxide or a metal oxide.
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Metals and oxygen	Metals react with oxygen to form metal oxides	magnesium + oxygen $\rightarrow$ magnesium oxide $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$
Reduction	This is when oxygen is removed from a compound during a reaction	e.g. metal oxides reacting with carbon, extracting low reactivity metals
Oxidation	This is when oxygen is gained by a compound during a reaction	e.g. metals reacting with oxygen, rusting of iron

Reactions with acids	<i>metal + acid $\rightarrow$ metal salt + hydrogen</i>	magnesium + hydrochloric acid $\rightarrow$ magnesium chloride + hydrogen zinc + sulfuric acid $\rightarrow$ zinc sulfate + hydrogen
Acids react with some metals to produce salts and hydrogen.		
Reactions of acids and metals		
Extraction using carbon		
<i>Metals less reactive than carbon can be extracted from their oxides by reduction.</i>		
For example: zinc oxide + carbon $\rightarrow$ zinc + carbon dioxide		

Extraction of metals and reduction

Group 1 metals	Reactions with water	Reactions with acid
Group 2 metals	<i>Reactions get more vigorous as you go down the group</i>	<i>Reactions get more vigorous as you go down the group</i>
Zinc, iron and copper	<i>Do not react with water</i>	<i>Observable reactions include fizzing and temperature increases</i>
	<i>Do not react with water</i>	<i>Zinc and iron react slowly with acid. Copper does not react with acid.</i>

AQA Chemical Changes 1

Reactivity of metals

The reactivity series

Metals form positive ions when they react	<i>The reactivity of a metal is related to its tendency to form positive ions</i>	The reactivity series arranges metals in order of their reactivity (their tendency to form positive ions).
Carbon and hydrogen	<i>Carbon and hydrogen are non-metals but are included in the reactivity series</i>	These two non-metals are included in the reactivity series as carbon can be used to extract metals below it from their compounds. The place of hydrogen helps when deciding products of electrolysis
Displacement	<i>A more reactive metal can displace a less reactive metal from a compound.</i>	Silver nitrate + Sodium $\rightarrow$ Sodium nitrate + Silver

K	Na	Mg	Al	C	Zn	Fe	Sn	Pb	H	Cu	Ag	Au	Pt
potassium	sodium	magnesium	aluminium	carbon	zinc	iron	tin	lead	hydrogen	copper	silver	gold	platinum
most reactive													least reactive

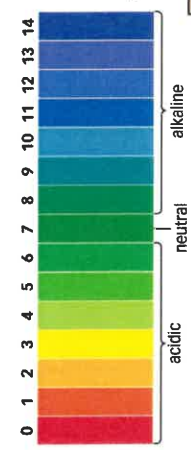
The ions discharged when an aqueous solution is electrolysed using inert electrodes depend on the relative reactivity of the elements involved.

At the negative electrode	Metal will be produced on the electrode if it is less reactive than hydrogen. Hydrogen will be produced if the metal is more reactive than hydrogen.
At the positive electrode	Oxygen is formed at positive electrode. If you have a halide ion (Cl^- , I^- , Br^-) then you will get chlorine, bromine or iodine formed at that electrode.

Electrolysis of aqueous solutions

Strong acids	Completely ionised in aqueous solutions e.g. hydrochloric, nitric and sulfuric acids.
Weak acids	Only partially ionised in aqueous solutions e.g. ethanoic acid, citric acid.
Hydrogen ion concentration	As the pH decreases by one unit (becoming a stronger acid), the hydrogen ion concentration increases by a factor of 10.

Soluble salts	Soluble salts can be made from reacting acids with solid insoluble substances (e.g. metals, metal oxides, hydroxides and carbonates).
Production of soluble salts	Add the solid to the acid until no more dissolves. Filter off excess solid and then crystallise to produce solid salts.



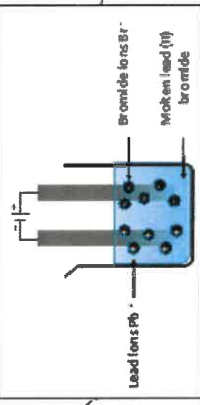
In neutralisation reactions, hydrogen ions react with hydroxide ions to produce water:
 $\text{H}^+ + \text{OH}^- \rightarrow \text{H}_2\text{O}$

Acids	Acids produce hydrogen ions (H^+) in aqueous solutions.
Alkalis	Aqueous solutions of alkalis contain hydroxide ions (OH^-).

The pH scale and neutralisation

You can use universal indicator or a pH probe to measure the acidity or alkalinity of a solution against the pH scale.

Process of electrolysis	<i>Splitting up using electricity</i> When an ionic compound is melted or dissolved in water, the ions are free to move. These are then able to conduct electricity and are called electrolytes. Passing an electric current through electrolytes causes the ions to move to the electrodes.
Electrode	<i>Anode Cathode</i> The positive electrode is called the anode. The negative electrode is called the cathode.
Where do the ions go?	<i>Cations Anions</i> Cations are positive ions and they move to the negative cathode. Anions are negative ions and they move to the positive anode.



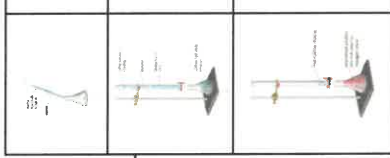
Electrolysis

AQA Chemical Changes 2

Reactions of acids

Titration (Chemistry only)

Titration is used to work out the precise volumes of acid and alkali solutions that react with each other.



1. Use the pipette to add 25 cm³ of alkali to a conical flask and add a few drops of indicator.
2. Fill the burette with acid and note the starting volume. Slowly add the acid from the burette to the alkali in the conical flask, swirling to mix.
3. Stop adding the acid when the end-point is reached (the appropriate colour change in the indicator happens). Note the final volume reading. Repeat steps 1 to 3 until you get consistent readings.

Calculating the chemical quantities in titrations involving concentrations in mol/dm³ and in g/dm³ (HT ONLY):

$2\text{NaOH(aq)} + \text{H}_2\text{SO}_4\text{(aq)} \rightarrow \text{Na}_2\text{SO}_4\text{(aq)} + 2\text{H}_2\text{O(l)}$

It takes 12.20cm³ of sulfuric acid to neutralise 24.00cm³ of sodium hydroxide solution, which has a concentration of 0.50mol/dm³.

Calculate the concentration of the sulfuric acid in g/dm³

$0.5 \text{ mol/dm}^3 \times (24/1000) \text{ dm}^3 = 0.012 \text{ mol of NaOH}$

The equation shows that 2 mol of NaOH reacts with 1 mol of H₂SO₄, so the number of moles in 12.20cm³ of sulfuric acid is $(0.012/2) = 0.006 \text{ mol of sulfuric acid}$

Calculate the concentration of sulfuric acid in mol/dm³

$0.006 \text{ mol} \times (1000/12.2) \text{ dm}^3 = 0.49 \text{ mol/dm}^3$

Calculate the concentration of sulfuric acid in g/dm³

$\text{H}_2\text{SO}_4 = (2 \times 1) + 32 + (4 \times 16) = 98 \text{g}$
 $0.49 \times 98 \text{g} = 48.2 \text{g/dm}^3$

Extracting metals using electrolysis

Metals can be extracted from molten compounds using electrolysis.

This process is used when the metal is too reactive to be extracted by reduction with carbon.

The process is expensive due to large amounts of energy needed to produce the electrical current.

Example: aluminium is extracted in this way.

Higher tier: You can display what is happening at each electrode using half-equations:

At the cathode: $\text{Pb}^{2+} + 2\text{e}^- \rightarrow \text{Pb}$

At the anode: $2\text{Br}^- \rightarrow \text{Br}_2 + 2\text{e}^-$

Endothermic	Energy is taken in from the surroundings so the temperature of the surroundings decreases	- Thermal decomposition - Sports injury packs
Exothermic	Energy is transferred to the surroundings so the temperature of the surroundings increases	- Combustion - Hand warmers - Neutralisation

Reaction profiles	Show the overall energy change of a reaction
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Breaking bonds in reactants	Endothermic process
Making bonds in products	Exothermic process

Overall energy change of a reaction	Exothermic	Energy released making new bonds is greater than the energy taken in breaking existing bonds.
	Endothermic	Energy needed to break existing bonds is greater than the energy released making new bonds.

Bond energy calculation	
Calculate the overall energy change for the forward reaction $N_2 + 3H_2 \rightleftharpoons 2NH_3$ N≡N 945	
Bond breaking: $945 + (3 \times 436) = 945 + 1308 = 2253 \text{ kJ/mol}$	
Bond making: $6 \times 391 = 2346 \text{ kJ/mol}$	
Overall energy change = $2253 - 2346 = -93 \text{ kJ/mol}$	
Therefore reaction is exothermic overall.	

Types of reaction

The energy change of reactions (HT only)

AQA GCSE Energy changes

Cells and batteries (Chemistry only)

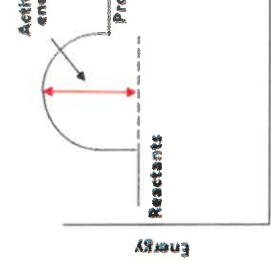
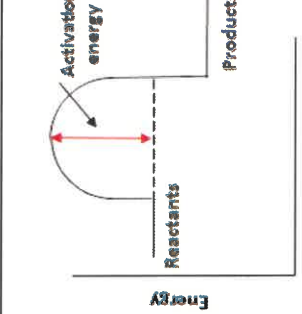
Batteries	Simple cell	Make a simple cell by connecting two different metals in contact with an electrolyte.	Increase the voltage by increasing the reactivity difference between the two metals.
	Non-rechargeable cells	Consist of two or more cells connected together in series to provide a greater voltage. Stop when one of the reactants has been used up	Alkaline batteries
	Rechargeable cells	Can be recharged because the chemical reactions are reversed when an external electrical current is supplied	Rechargeable batteries

Ionic half equations	Negative electrode: $2H_2(g) + 4OH^-(aq) \rightarrow 4H_2O(l) + 4e^-$	Positive electrode: $O_2(g) + 2H_2O(l) + 4e^- \rightarrow 4OH^-(aq)$
Hydrogen fuel cells		
Word equation: hydrogen + oxygen → water		
Symbol equation: $2H_2 + O_2 \rightarrow 2H_2O$		
Advantages: - No pollutants produced - Can be a range of sizes		
Disadvantages: - Hydrogen is highly flammable - Hydrogen is difficult to store		

Fuel cells (Chemistry only)

Reaction profiles

Activation energy	Chemical reactions only happen when particles collide with sufficient energy
The minimum amount of energy that colliding particles must have in order to react is called the activation energy.	

Endothermic		Products are at a higher energy level than the reactants. As the reactants form products, energy is transferred from the surroundings to the reaction mixture. The temperature of the surroundings decreases because energy is taken in during the reaction.
Exothermic		Products are at a lower energy level than the reactants. When the reactants form products, energy is transferred to the surroundings. The temperature of the surroundings increases because energy is released during the reaction.

Electrons carry current. Electrons are free to move in metal.

Cell	Battery	Switch	Lamp	Ammeter	Volt meter	Diode	LED	LDR	Fuse	Resistor	Variable resistor	Thermistor
Store of chemical energy	Two or more cells in series	Breaks circuit, turning current off	Lights when current flows	Measures current	Measures potential difference	Current flows one way	Emits light when current flows	Resistance low in bright light	Melts when current is too high	Affects the size of current flowing	Allows current to be varied	Resistance low at high temp

Circuit symbols

Current	Ampere (A)
Potential difference (p.d.)	Volts (V)
Charge	Coulombs (C)

Charge = Current X time

$Q = I \times t$

Controlling current

Changing current
Change the p.d. of the cells
Add more components

Ammeter
Set up in series with components

Voltmeter
Set up parallel to components

Resistance (Ω)
A measurement of how much current flow is reduced

The higher the resistance, the more difficult it is for current to flow.

Increasing resistance, reduces current.

Increasing voltage, increases current.

Ohmic conduct or
At a constant temperature, current is directly proportional to the p.d. across the resistor.

Filament lamp
As current increases, the resistance increases. The temperature increases as current flows.

Diode
Current flows when p.d. flows forward. Very high resistance in reverse.

Series and parallel circuits

Series circuit	Current is the same in all components.	Total p.d. from battery is shared between all the components.	Total resistance is the sum of each component's resistance.
Parallel circuit	Total current is the sum of each component's current.	p.d. across all components is the same.	Total resistance is less than the resistance value of the smallest individual resistor.

Energy transfers

Work is done when charge flowing.

Power (W) = potential difference X current

$R = V \times I$

Power = (current)² X resistance

$P = I^2 \times R$

Energy transferred = Power X time

$E = P \times t$

AQA Electricity

Domestic uses and safety

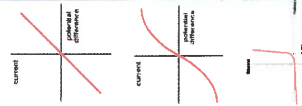
Thermistor	Resistance varies with temperature	Resistance decreases as temperature increases.
LDR	Resistance varies with light intensity	Resistance decreases as light increases.

'Earthing' a safety device; Earth wire joins the metal case.

Mains supply
Frequency 50Hz, 230V

Live - Brown	Carries p.d. from mains supply.	p.d. between live and earth = 230V
Neutral - Blue	Completes the circuit.	p.d. = 0V
Earth - Green and Yellow stripes	Only carries current if there is a fault.	p.d. = 0V

Current - Potential difference graphs



Alternating current	p.d. switches direction many times a second, current switches direction	Direct current	p.d. remains in one direction, current flows the same direction
Generator.	Cell or battery.	Like charges	Repel
		Unlike charges	Attract

National Grid

Distributes electricity generated in power stations around UK

Static electricity

When two insulating material are rubbed together, electrons move from one material to the other.

Shocks
Walking on carpet causes friction. Electrons move to the person and charge builds up. When the person touches a metal object, the electrons conduct away, making a spark.

Electric fields
Charged objects create electric fields around them. Strongest closest to the object. The field direction is the direction of force on a positive charge. Add more charge increases field strength.



Pressure of a fixed volume of gas increases as temperature increases (temperature increases, speed increases, collisions occur more frequently and with more force so pressure increases).

Temperature of gas is linked to the average kinetic energy of the particles.

If kinetic energy increases so does the temperature of gas.

No kinetic energy is lost when gas particles collide with each other or the container.

Gas particles are in a constant state of random motion.

$P = m \div V$

Density = mass $\div$ volume.

Density
Mass of a substance in a given volume

State	Particle arrangement	Properties
Solid	Packed in a regular structure. Strong forces hold in place so cannot move.	Difficult to change shape.
Liquid	Close together, forces keep contact but can move about.	Can change shape but difficult to compress.
Gas	Separated by large distances. Weak forces so constantly randomly moving.	Can expand to fill a space, easy to compress.

	Units
Density	Kilograms per metre cubed (kg/m^3)
Mass	Kilograms (kg)
Volume	Metres cubed (m^3)
Energy needed	Joules (J)
Specific latent heat	Joule per kilogram (J/kg)
Change in thermal energy	Joules (J)
Specific heat capacity	Joule per kilogram degrees Celsius ($\text{J}/\text{kg}^\circ\text{C}$)
Temperature change	Degrees Celsius ($^\circ\text{C}$)
Pressure	Pascals (Pa)

Particle model

Pressure

PHYSICS ONLY: when you do work the temperature increases e.g. pump air quickly into a ball, the air gets hot because as the piston in the pump moves the particles bounce off increasing kinetic energy, which causes a temperature rise.

Reducing the volume of a fixed mass of gas increases the pressure.
Halving the volume doubles the pressure.

$PV = \text{constant.}$

$P_1 V_1 = P_2 V_2$

AQA PARTICLE MODEL OF MATTER

Internal energy and energy transfers

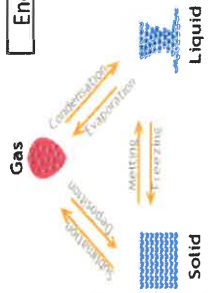
Change of state

Freezing	Liquid turns to a solid. Internal energy decreases.
Melting	Solid turns to a liquid. Internal energy increases.
Boiling / Evaporating	Liquid turns to a gas. Internal energy increases.
Condensation	Gas turns to a liquid. Internal energy decreases.
Sublimation	Solid turns directly into a gas. Internal energy increases.
Conservation of mass	When substances change state, mass is conserved.
Physical change	No new substance is made, process can be reversed.

Specific Latent Heat	Energy needed to change 1kg of a substance's state
Specific Latent Heat of Fusion	Energy needed to change 1kg of solid into 1 kg of liquid at the same temperature
Specific Latent Heat of Vaporisation	Energy needed to change 1kg of liquid into 1 kg of gas at the same temperature

Energy needed = mass $\times$ specific latent heat.

$\Delta E = m \times L$



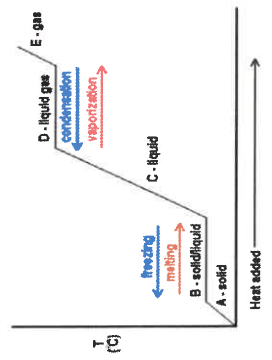
Specific Heat Capacity
Energy needed to raise 1kg of substance by 1°C

Depends on:
• Mass of substance
• What the substance is
• Energy put into the system.

Change in thermal energy = mass $\times$ specific heat capacity $\times$ temperature change.
 $\Delta E = m \times c \times \Delta \theta$

Internal energy
Energy stored inside a system by particles
Heating changes the energy stored within a system

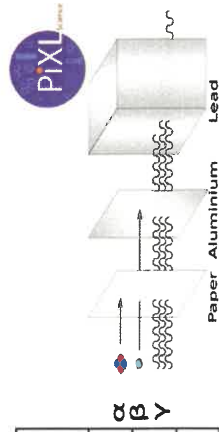
Internal energy is the total kinetic and potential energy of all the particles (atoms and molecules) in a system.
Heating causes a change in state. As particles separate, potential energy stored increases. Heating increases the temperature of a system. Particles move faster so kinetic energy of particles increases.



Radius of an atom
 $1 \times 10^{-10}\text{m}$

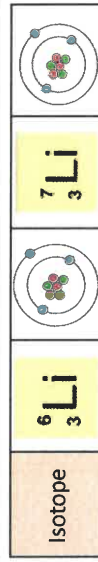
Electrons gained
Negative ion

Electrons lost
Positive ion



Atom	Same number of protons and electrons	
Ion	Unequal number of electrons to protons	
Mass number	Number of protons and neutrons	
Atomic number	Number of protons	

Particle	Charge	Size	Found
Neutron	None	1	In the nucleus
Proton	+	1	
Electron	-	Tiny	Orbits the nucleus



Different forms of an element with the same number of protons but different number of neutrons

Discovery of the nucleus

Democritus	Suggested idea of atoms as small spheres that cannot be cut.
J J Thomson (1897)	Discovered electrons – emitted from surface of hot metal. Showed electrons are negatively charged and that they are much less massive than atoms.
Thomson (1904)	Proposed 'plum pudding' model – atoms are a ball of positive charge with negative electrons embedded in it.
Geiger and Marsden (1909)	Directed beam of alpha particles (He^{2+}) at a thin sheet of gold foil. Found some travelled through, some were deflected, some bounced back.
Rutherford (1911)	Used above evidence to suggest alpha particles deflected due to electrostatic interaction between the very small charged nucleus, nucleus was massive. Proposed mass and positive charge contained in nucleus while electrons found outside the nucleus which cancel the positive charge exactly.
Bohr (1913)	Suggested modern model of atom – electrons in circular orbits around nucleus, electrons can change orbits by emitting or absorbing electromagnetic radiation. His research led to the idea of some particles within the nucleus having positive charge; these were named protons.
Chadwick (1932)	Discovered neutrons in nucleus – enabling other scientists to account for mass of atom.

Atom structure

Radioactive decay	Unstable atoms randomly emit radiation to become stable
Detecting	Use Geiger Muller tube
Unit	Becquerel
Ionisation	All radiation ionises

Atoms and Nuclear Radiation

Atoms and Isotopes

AQA ATOMIC STRUCTURE

PHYSICS ONLY: Hazards and uses of Radioactive emissions and of background radiation

Nuclear fission and fusion

PHYSICS ONLY: Nuclear energy

Decay	Range in air	Ionising power	Penetration power
Alpha	Few cm	Very strong	Stopped by paper
Beta	Few m	Medium	Stopped by Aluminium
Gamma	Great distances	Weak	Stopped by thick lead

Decay	Emitted from nucleus	Changes in mass number and atomic number
Alpha (α)	Helium nuclei (${}^4_2\text{He}$)	-4 -2
Beta (β)	Electron (${}^0_{-1}\text{e}$)	0 +1
Gamma (γ)	Electromagnetic wave	0 0
Neutron	Neutron	-1 0

Contamination	Unwanted presence of radioactive atoms
Irradiation	Person is in exposed to radioactive source

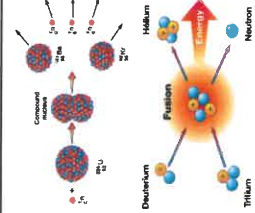
Half life
The time taken to lose half of its initial radioactivity

Sievert	Unit measuring dose of radiation
Background	Constant low level environmental radiation, e.g. from nuclear testing, nuclear power, waste

Uses	Different isotopes have different half lives	Short half-lives used in high doses, long half lives used in low doses.
Tracers	Used within body	Isotope with short half life injected, allowed to circulate and collect in damaged areas. PET scanner used to detect emitting radiation. Must be beta or gamma as alpha does not penetrate the body.
Radiation therapy	Used to treat illnesses e.g. cancer	Cancer cells killed by gamma rays. High dose used to kill cells. Damage to healthy cells prevented by focussed gamma ray gun.

Fuel rods	Made of U-238, 'enriched' with U-235 (3%). Long and thin to allow neutrons to escape, hitting nuclei.
Control rods	Made of Boron. Controls the rate of reaction. Boron absorbs excess neutrons.
Concrete	Neutrons hazardous to humans – thick concrete shield protects workers.

Nuclear fission	One large unstable nucleus splits to make two smaller nuclei	Neutron hits U-235 nucleus, nucleus absorbs neutron, splits emitting two or three neutrons and two smaller nuclei. Process also releases energy.	Process repeats, chain reaction formed
Nuclear fusion	Two small nuclei join to make one larger nucleus	Difficult to do on Earth – huge amounts of pressure and temperature needed.	Used in nuclear power stations Occurs in stars



better hope – brighter future

Education knowledge organiser

The role of education in society. 1. The economic role- teaching skills for work. Functionalists: Teaches skills and knowledge necessary for work. Preparation for real world. Marxists: This is reinforcing the class system. 2. The selective role- Choosing the most able people for the most important jobs. Functionalists: The system is a sieve. Meritocratic system, everyone has equal opportunities to succeed, those who work hard and achieve are rewarded with higher pay levels/status. Marxists: Education does not provide equal opportunities. Designed to benefit the powerful. This is why working-class children underperform. 3. Social Control- teaching acceptance of rules and authority Functionalists: Society must be regulated by rules. Schools are an agency of social control. Marxists: Social control reflects social control in the wider society which benefits those in power. 4. The political role- teaching people to be effective citizens and creating social cohesion. Functionalists: Acceptance of the political system and will exercise their rights wisely (voting) Marxists: Only certain political opinions and ideas are tolerated, radical ideas are rejected.
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The Hidden Curriculum: 1. Hierarchy: The hierarchy in school can be seen to reflect the structure of society and in the workplace. 2. Competition: School encourages competition between students e.g. sports, exam results. 3. Social Control: Rules, regulations, obedience and respect for authority. 4. Gender role allocation: teacher expectations and subject choice 5. Lack of satisfaction: Preparing students for boring, meaningless and repetitive jobs is a similar experience to employees at work.

Social Control: Formal Discipline, punishment, school rules. Social Control: Informal Peer-group pressure, learning to live and work with others. Pre-School (3-5 years). May be provided through the local authority or private.
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De-schooling: Illich (1995) argues that schools repress children and promotes passive conformity rather than developing creative individuals. He argues for de-schooling. School should be abolished and people should pursue knowledge and skills with like-minded individuals

Primary (5-11 years).
Refers to both infant & junior schools.

Secondary (11-16 years). Most provided for by the state in comprehensive schools.

Further & Higher Education (16-18 years). Sixth Form, college or apprenticeships.

Home education (home schooling): Teaching children at home rather than in a state or independent school. Parents or tutors usually carry this out. It is a legal option for people who wish to provide a different learning environment or ethos to local schools. Recently raised issues around standards and impact on social development.

Talcott Parsons (Functionalist)

- Schools prepare children for the same **universalistic standards**- the opposite of the **particularistic standards** from home life.
- Schools promote a **value consensus**: encouraged to achieve high and the rewards encourage them to maximise their potential. Students are also competing on equal terms in the classroom.
- Meritocracy**: students achievements are based on their abilities and efforts, not on social class, gender or ethnicity.
- Role allocation: matched to the correct job based on skill/knowledge.

Arguments for vocational education - It will lead to a more skilled, better-qualified workforce that will make Britain more competitive - Functionalists believe it shows the importance the education system has to provide skills and expertise needed by industry & the economy.	Arguments against vocational education - The emphasis on skills training disguises the fact that the problem is not that young people lack necessary skills for work it's that there is no work for skilled young people. - Marxists argue it is viewed as lower status compared to purely academic qualifications. - Seen as replicating the Tripartite system
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Functionalist
Education is an important agency of socialisation, it maintains social stability and social cohesion. Prepares young people for working life and adulthood. Teaches specialist skills for work. Education is meritocratic.

Marxist
Prepares young people for a capitalist society. Education is not meritocratic. Encourages conformity and acceptance of social position. The hidden curriculum teaches young people the expectations of society.

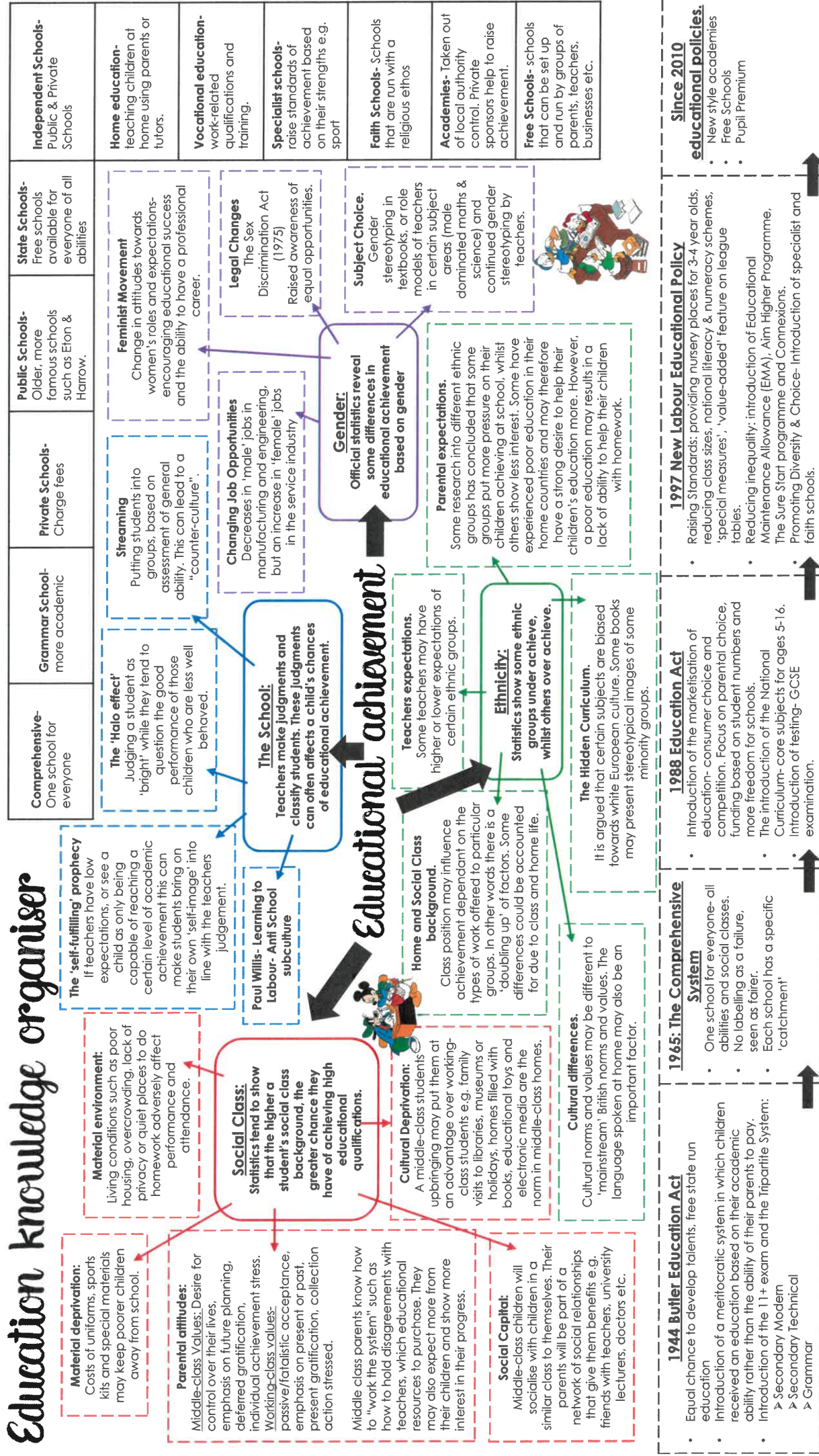
Feminist
There are inequalities in the education system between boys and girls. It plays a role in socialisation of boys and girls. Even though girls are outperforming boys, education still reinforces patriarchal views.

Why are independent schools favoured by some? - Lower teacher-student ratio which means smaller classes so students receive more attention - Resources/ facilities are better - Academic culture - Parental input, expectations and support tends to be higher	Why are state schools favoured by others? - Free and not based on ability - More socially mixed - Upward social mobility - Students do not have to travel far on a daily basis
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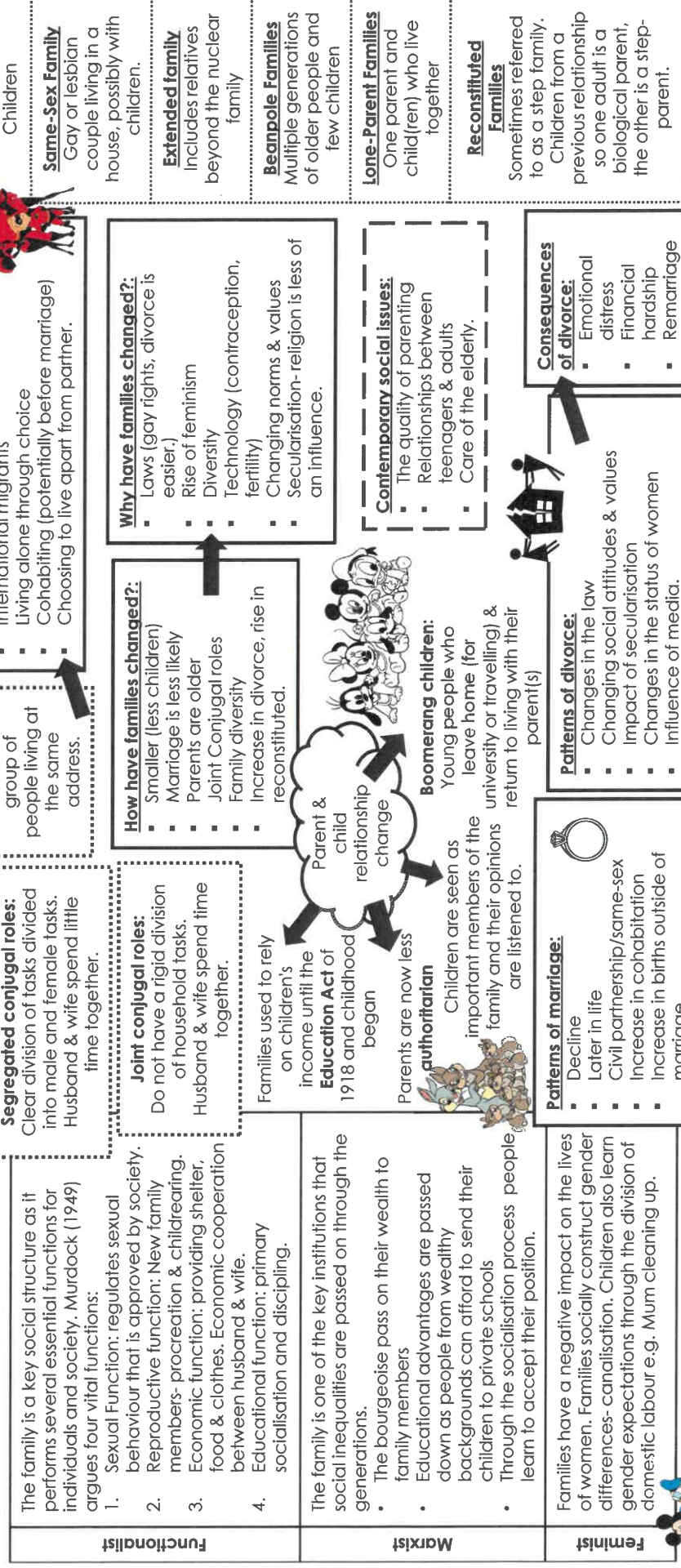
Kaythinkers

Emile Durkheim (Functionalist) The major function of education is learning society's norms and values. Education provides the link between the individual and society. He believed that the school provides a context in which children learn to cooperate with those who are neither their kin nor their friends. Rules should be strictly enforced in order for children to learn self-discipline and to see that misbehaviour damages society as a whole.	Bowles & Gintis (1976) (Marxist) The major role of education is the reproduction of labour power. There is a close relationship between the rules which govern the work place and the education system e.g. the creation of a hardworking, docile, obedient. They reject the view that capitalist societies are meritocratic and believe that class background is the most important factor influencing levels of attainment.	Bail, Bowe & Gewirtz (1994): Parental Choice & Competition A study of fifteen schools in neighbouring LEAs with different population profiles (e.g. class and ethnicity). The study evaluates the impact of parental choice and the publication of league tables, e.g. the pressure to reintroduce streaming and setting and the tendency for some schools to focus on the more able.	Halsey, Heath & Ridge (1980): Social Class Inequality The authors found evidence of clear class inequalities in education. They found that an individual from the service class, as compared to one from the working class, had four times as great a chance of being at school at 16. Whilst the chance of an individual from the service class attending university was eleven times greater than one from the working class.	Bail (1981): Banding & Teacher expectations This is a participant observation study. The study describes a school in the process of change and raises questions about the selection and socialisation experienced by two cohorts moving through the school, one banded by ability and the other taught in mixed ability classes.	Willis (1977): Learning to Labour (Marxist) He believes that education is not a particularly successful agency of socialisation and that education can have unintended consequences that may not be beneficial to capitalism. He described the existence of a counter culture, which was opposed to the values of the school. He concluded their rejection of the school made them suitable candidates for male dominated, unskilled or semi-skilled manual work.
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Education knowledge organiser



Families Knowledge Organiser



Keythinkers

Rapoport and Rapoport (1982)- Family Diversity	Young & Wilmott (1973) (Functionalst)	Talcott Parsons (1956) (Functionalist)	Eli Zaretsky (1976)- (Marxist)	Delphy & Leonard (Radical Feminists)	Ann Oakley (1974) (Feminist)
The family is going through a process of change. There is a wider range of options available & people value choice in their family pattern. No one dominant norm anymore. Five types of family diversity: Organisational, cultural, class, life course and cohort.	Suggested the 'symmetrical family' is typical-similar contributions made by each spouse to the running of the household e.g. shared chores and shared decisions. Conjugal roles are not interchangeable, but they are of equal importance.	The family has lost some of its functions, such as education. The family is almost functionless, but still has two important functions. Primary socialisation and the stabilisation of adult personalities e.g. to give and receive emotional support.	He believes that the family has become a prop to the capitalist economy (eg the system depends on the domestic labour of housewives who reproduce future generations of workers) whilst also serving as a vital unit of consumption.	Men are the prime beneficiaries of the exploitation of women's labour. They believe that the family has a central role in maintaining patriarchy. When wives have paid employment outside the home they still have to carry out household tasks which are not equally shared with their male partners.	Rejects the symmetrical family. The conventional family is no longer the norm. People expect a conventional family life to bring happiness, but there are strains e.g. depression, health problems, stress, from the conventional expectations.

Research Methods Knowledge Organiser

Postal / Email Questionnaires:

- ✓ Quick
- ✓ Easy to send to lots of people (representative & reliable).
- x Response rate is about 10%
- x Might not understand the questions (less valid).

Structured / Semi-structured Interviews:

- ✓ All participants are asked the same questions (reliable)
- ✓ Can explain what questions mean (valid);
- ✓ Ability to explain answers further in a semi-structured interview (valid).
- x Interviewer bias

Informal (Unstructured) Interviews:

- ✓ Participants can talk about what is important to them (valid)
- ✓ The researcher can ask the participant what their answers mean (valid).
- x Every interview is different, hard to compare the results of all the interviews (less reliable)

Group Interviews

- ✓ Access a wide range of views and experiences
- ✓ Participants may feel more at ease.
- ✓ Save time and money
- x Some may dominate discussion/everyone might not be heard
- x Cannot assure confidentiality

Participant observation

- ✓ Watch how participants behave (valid)
- ✓ Can see the world from participants' point of view (valid).
- x If participants know they are being observed, then they will not act naturally
- x The researcher might have to get involved in criminal behaviour (unethical)
- x If participants do not know they are being observed, then they can not give their permission (consent – unethical).

Official Statistics

- ✓ The data is usually based on the whole population (representative).
- ✓ May be the only source of data
- ✓ Can investigate trends over time
- x Cannot check the validity
- x Could be politically biased

Qualitative Data: data presented in words or visual form e.g. diary, photographs, mass media



Quantitative Data: data presented in numerical form presented in graphs, pie charts or tables of statistics e.g. official statistics

- ✓ Reliable
- ✓ Relevant
- ✓ Scientific
- ✓ Preferred by Positivists
- x Costly
- x Time consuming
- x Sampling needs to be generalisable

- ✓ Large Scale
- ✓ Cheap
- ✓ Quick
- ✓ Only way to study historical issues
- ✓ Preferred by Interpretivists
- x Reliability could be questioned
- x Interpretation issues

Primary Research
(data collected first hand,)



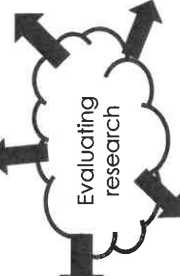
Secondary Research
(data from previously published sources,)

Census
Website
Journals
Media
Books
Official statistics
Primary data
ANYTHING

Interviews
Surveys
Experiments
Questionnaires
Focus groups
Case Studies
Observations

Validity: Data is valid if it gives a true picture of social reality

Reliability: Data is seen as reliable if other researchers using the same methods get the same results.



Representativeness: Sociologists want the sample they are studying to represent a large group of people

Generalisation: Assuming the results are valid, reliable and representative you should be able to generalise your findings

Ethics: Research must be carried out in a morally acceptable way

Closed (or fixed-choice) questions

- ✓ Easy to process and present
- x Doesn't allow for the respondent to expand on their answer

Open-ended questions

- ✓ Able to give a more detailed answer
- x Difficult to convert into statistics
- x More time consuming to process



A representative sample: typical of the wider population

An unrepresentative sample: difficult to generalise. Some groups are overrepresented

Sampling Methods



Probability (or random) sampling

Simple random sampling

Use a computer to generate a random sample, everyone has as much chance as the other.

Systematic random sampling

The researcher uses a system to pick the participants (eg. every 10th name on the register).

Stratified random sampling

This involves picking people from different groups within the population

Snowball sampling

The researcher selects one person, then asks them to put them in touch with other people, etc.

Quota sampling

Each interviewer has an exact number of people from categories that they need e.g. females, teenagers.

Purposive sampling

The sample is collected according to a known characteristic e.g. a teacher.