Haggerston School

cst Community Schools Trust

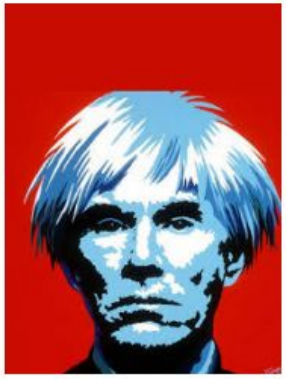
Year 9 Knowledge Organiser Term 1 2024

Aspiration Creativity Character

Knowledge Organiser - Contents

Term 1

ANDY WARHOL
1928 - 1987



American Artist

Andy Warhol was the leading artist of pop art, obsessed with celebrity, consumer culture and mechanical reproduction and silk-screen printing.

He stated: ""Art is what you can get away with" and "everyone will be famous for 15 minutes".

He was known as a social radical and creative melting pot. Warhol was a Ruthenian Catholic and volunteered at homeless shelters in New York City.

Warhol's brother described the artist as "really religious, but he didn't want people to know about that because it was private".

Periods

Contemporary, Pop Art, Consumerism

Influences

Marcel Duchamp, Truman Capote, Jasper Johns, Tom of Finland, Ben Shan, Jack Smith.

Famous Works

- Campbell's Soup Cans (1962)
- Green Coca Cola Bottles (1962)
- Triple Elvis (1963)
- Shot Marylins (1964))
- Prince (1984)
- Race Riot (1964)

Self Quiz:

1. What are the characteristics of Pop-Art?
2. What were the common subjects of Pop artists?

The Pop Art movement began in the early 1960's as a way to appeal to the masses. Pop artists believed that art had become too individualized and hard to understand, so they used common everyday objects that people would easily recognize. In Pop Art we see subject matter taken right from American popular culture like soup cans, celebrities, hamburgers, and coke bottles.

This close up of the **benday dot** detail—a technique used for mass-produced printing to give the illusion of block colour. Layering the dots closer or further apart gives the illusion of shading.

This example also show Lichtenstein's signature simple yet bold outlines.

The movement forced people to notice the beauty of the ordinary things around them that they tended to take for granted. Images were often large and with shiny bold colors that were impossible to ignore.

Roy Lichtenstein was a well-known Pop artist who created blown up images from old comic books. Originally trained as a commercial artist, Lichtenstein's paintings mimicked techniques and processes used in the mass production of prints. His paintings are composed of bold outlines, lots of primary colors, and millions of Benday dots. (Benday dots are named for an American printer named Benjamin Day. Benday dots are in all printed images, but are usually too small to be seen by the naked eye.)

Two things that Lichtenstein frequently portrayed in his artwork were the mindless violence and stereotyped romance in comic book imagery.

Stylistically pop art can be defined as:

- Simple, crisp lines
- Oversized images or objects
- Often reflects and copies the styles seen in the media
- Collages of popular images
- Bright Colors
- Some work re-creates the same subject in several pieces or within the same piece

Subjects are often easily recognizable and reflect popular items, people or ideas from American Culture:

- Food
- Brand Names and products
- Iconic Figures
- Common, everyday household items
- Current events

Practical application of art history:

1. Using the grid method accurately re-create the artwork by A.Warhol and R.Lichtenstein.
2. Create a drawing of objects(water bottle, planner, books, chairs, etc.) or people around you using Benday dots and black lines only (in the style of Lichtenstein)..
3. Can you create a portrait in the style of A.Warhol (use colour, e.g. green and red pens, felt tips, marker pens)?
4. Write in full sentences WWW and EBI.

ART

ART

EMORY DOUGLAS

Born 1943

As the art director, designer, and main illustrator for *The Black Panther*, Douglas created images that became icons, representing black American struggles during the 1960s and 1970s.

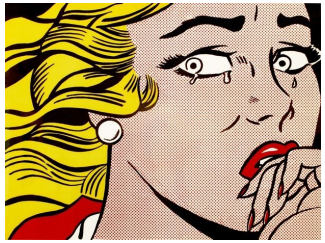
He developed the iconic images that branded the Black Panther Party, a group organising social programmes and challenging police brutality. Douglas created graphics including imagery based on the Party's 10-Point program, including things such as social services and decent housing for black Americans.

He continues to create work today focusing on children and education.

"After a while it flashed on me that you have to draw in a way that even a child can understand [in order] to reach your broadest audience without losing the substance or insight of what is represented."

Self Quiz:

1. What are the main characteristics of Pop-Art?
2. What were the common subjects of Pop artists?
3. How is the artwork of Emory Douglas similar? Stylistically?



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The movement forced people to notice the beauty of the ordinary things around them that they tended to take for granted. Images were often large and used bold colours that were impossible to ignore.

Roy Lichtenstein was a well-known Pop artist who created blown up images from old comic books. Originally trained as a commercial artist, Lichtenstein's paintings mimicked techniques and processes used in the mass production of prints. His paintings composed of bold outlines, lots of primary colours and millions of Benday dots. (Benday dots are named after an American printer named Benjamin Day). Benday dots in in all printed images, but are usually too small to be seen by the naked eye). Other artists like Andy Warhol focused on screen printing and mass producing images of celebrities like Marilyn Monroe.

Stylistically Pop Art can be defined as:

- ★ Simple, crisp lines
- ★ Oversized images or objects
- ★ Often reflects and copies the styles seen in the media
- ★ Collages of popular images
- ★ Bright Colours
- ★ Repetition of the same subject in several pieces or in the same artwork
- ★ Subjects are easily recognisable and reflect popular items, brands or ideas from popular culture such as: food, brand names, celebrities, everyday household items, current events, news stories

Practical application of art history:

1. Using the grid method accurately re-create the artworks by E. Douglas, A.Warhol and R.Lichtenstein.
2. Create a drawing of objects (water bottle, planner, books, chairs, etc.) or people around you using Benday dots and black lines only (in the style of Lichtenstein).
3. Can you create a portrait in the style of E. Douglas (bright background and a pencil portrait)?
4. Write in full sentences WWW and EBI.

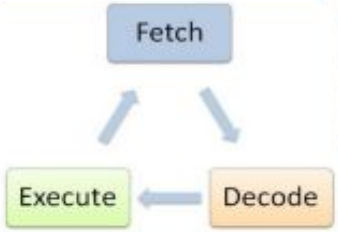
1.1 SYSTEMS ARCHITECTURE

KEY CONCEPTS

- Computer systems take data (input), process it and then output it.
- **Embedded systems** are computers built in to other devices like washing machines. They are dedicated to a single task so they are efficient.
- **Clock speed:** the number of instructions a processor can carry out per/second. Higher clock speed = faster CPU.
- Number of **Cores:** The more cores a CPU has the more instructions it can carry out at once (multitasking). More cores = faster processing.
- **Cache size:** A larger cache gives the CPU faster access to more data

FETCH – DECODE – EXECUTE CYCLE

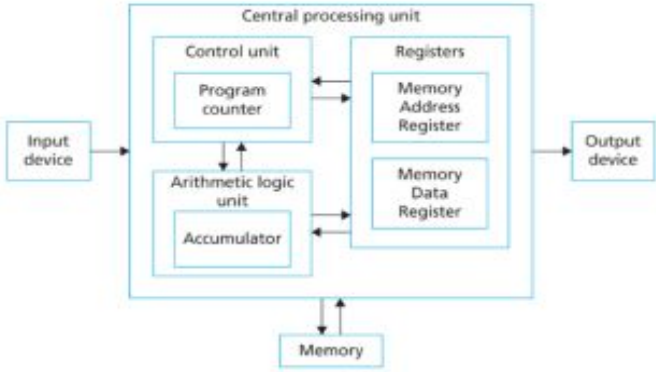
CPU **fetches** instruction from the RAM
(Copies memory address to MAR, copies
Instruction to MDR & adds 1 to PC.
CU **decodes** the instruction from the MDR
Instruction is **executed** by the CU
The next instructions is fetched and
The cycle repeats.



EXAM QUESTIONS

1. Explain how cache size, cores and clock speed affect the performance of the CPU.
2. Define what is meant by an embedded system
3. What is the purpose of the ALU?
4. Explain the role of the CPU registers (MAR and MDR)
5. Explain how the fetch decode execute cycle works

THE CENTRAL PROCESSING UNIT (CPU)



Control Unit (CU): executes instructions and controls the flow of data in the CPU.

Program counter: holds the memory address for the instruction of each cycle.

Arithmetic Logic Unit (ALU): does all of the calculations and logic operations.

Accumulator: holds the result of any calculations in the ALU.

Cache: very fast memory that stores regularly used data so that the CPU can access it quickly.

MAR (Memory Address Register): holds the address about to be used by the CPU.

MDR (Memory Data Register): holds the actual data or instruction being processed by the CPU.

COMPUTING

COMPUTING

1.2 MEMORY and 1.3 STORAGE

RANDOM ACCESS MEMORY (RAM)

- RAM is the computer's main memory that holds the data, programs and files while they are being used.
- RAM is volatile (power off = the data is lost)
- The CPU will fetch instructions from the RAM in the fetch – decode – execute cycle.
- When the RAM is full the computer uses **VIRTUAL MEMORY**. It uses the secondary storage as temporary RAM so that the computer can continue running (but slowly).

READ ONLY MEMORY (ROM)

- The ROM is on a chip build into the motherboard
- It contains the BIOS (boot up sequence for the computer)
- ROM is non-volatile (data still stored after power is off)

TYPES OF STORAGE

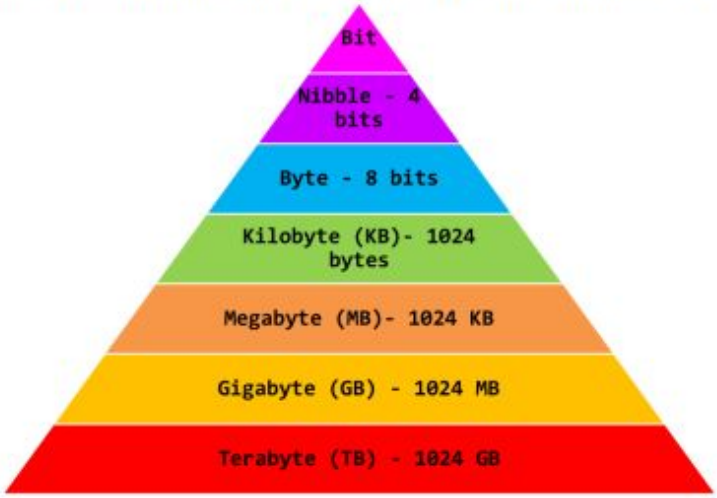
- Secondary Storage: where all data including the programs are stored when they are not being used.

Storage	Key Information
Hard Disk Drive (HDD)	Magnetic, has moving parts, large capacity, lower cost than SSD
Solid State Drive (SSD)	Flash memory, no moving parts, more robust than HDD, faster and more expensive than HDD
Flash memory	e.g. USB memory sticks, memory cards.
Optical Storage	e.g. CDs, DVDs. Cheap, portable and fairly robust.
Magnetic tape	Used for archive storage (backups). Very large capacity, low cost, slow.

Storage device comparison factors: speed, cost, durability, robustness, capacity and portability.

STORAGE CAPACITY

Some storage methods such as a HDD or SSD have a large capacity (they can store lots of data. Other devices such as CDs and SD cards have smaller capacity. Measurements of capacity are shown below:



1000 instead of 1024 could be used when doing your conversion calculations, because you will not be allowed a calculator in your exam.

EXAM QUESTIONS

1. Explain how the RAM works with the CPU in the fetch –decode – execute cycle
2. Explain the difference between volatile and non-volatile memory giving an example of each
3. Tom is buying a new laptop, he is not sure whether to get a magnetic HDD or SSD. Discuss the benefits and drawbacks of each.

2.2 PROGRAMMING TECHNIQUES

DATA TYPES

Data Type	Definition
String	Text eg: "Hello"
Integer	Whole number eg: 32
Float/Real	Decimal number eg: 1.2
Boolean	Two values eg: true or false
Character	A single character eg: b

VARIABLES AND CONSTANTS

Variable – A value which may change while the program is running. Variables can be local or global.

Local Variable – a variable which can only be used within the structure they are declared in.

Global Variable – a variable which can be used in any part of the code after they are declared

Constant – A value which cannot be altered as the program is running.

OPERATORS

Operator/Function	Definition
Exponentiation	Raises a number to a power eg: 2**3 OR 2 ^3 ($=2^3$)
Quotient/DIV	Gives the whole number after a division
Remainder/MOD	Gives the remainder part of a division
==	Is equal to
! or <>	Is not equal to
<	Is less than
>	Is more than

ARRAYS

One-Dimensional Arrays- this is like a list. In this example an array has been created called students. The list can hold 3 items (as shown).

```
array students [3]
students [0] = "Bob"
students [1] = "Dave"
students [2] = "Bob"
```

This command would print the second item (1) From the array. It would print "Dave".

```
print(students[1])
```

Two-Dimensional Arrays – these are lists within lists (like a table)

```
Grades=[["Bob", "22%", "44%"], ["Dave", "85%", "100%"]]
```

The code above creates the 2D array. The code Below would output:
"Bob's first test score was 22%"

	0	1	2
0	Bob	22%	44%
1	Dave	85%	100%

```
print("Bob's first test score was " + Grades [0, 1]
```

COMPUTING

COMPUTING

2.2 PROGRAMMING TECHNIQUES CONTINUED

PROGRAMMING CONSTRUCTS

A Sequence is when there are programming steps that are carried out one after another.

Selection is where there are different paths in your code eg: IF, ELIF, ELSE

Iteration is when there is repetition (loops) in code. This could be a WHILE loop (do something WHILE a condition is met) or a FOR loop (do something for a set number of times)

This count-controlled loop would print "Hello World" 8 times.:

```
for i=0 to 7
     print ("Hello")
next i
```

These condition controlled loops would check if a password's correct:

```
while answer != "letmein123"
     answer=input("Enter password")
endwhile
```

```
do
     answer=input("Enter password")
until answer=="letmein123"
```

STRING MANIPULATION

0	1	2	3
W	o	r	d

The characters in a string are numbered starting with position 0.

Function	Purpose
x.length	Gives the length of the string
x.upper	Changes the characters in the string to upper case
x.lower	Changes the characters in the string to lower case
x[i]	Gives the character in position i. Eg: x[2] = "r"
x.substring(a,b)	Gives the characters from position a with length b. Eg: x.subString(1,2) = or
+	Joins (concatenates) two strings together

FILE HANDLING

Myfile=openRead("myfile.text")	Opens the file in read mode
Myfile=openWrite("myfile.text")	Opens the file in write mode
Myfile.writeLine ("Hello")	Writes a line to the file
Line1=myfile.readLine()	Reads one line of the file
Myfile.close()	Closes the file
endOfFile()	Used to determine the end of a file

IF/ELSE AND SWITCH/CASE FOR SELECTION

IF ELSE

```
If choice == "a" then
   print("You chose A")
elseif choice=="b" then
   print("You chose B")
else
   print("Unrecognised choice")
```

SWITCH/CASE

```
Switch entry:
   case "A":
      print("You chose A")
   case "B":
      print("You chose B")
   default:
      print("Unrecognised choice")
```

Beginner's Python Cheat Sheet

Variables and Strings

Variables are used to store values. A string is a series of characters, surrounded by single or double quotes.

Hello world

```
print("Hello world!")
```

Hello world with a variable

```
msg = "Hello world!"
print(msg)
```

Concatenation (combining strings)

```
first_name = 'albert'
last_name = 'einstein'
full_name = first_name + ' ' + last_name
print(full_name)
```

Lists

A list stores a series of items in a particular order. You access items using an index, or within a loop.

Make a list

```
bikes = ['trek', 'redline', 'giant']
```

Get the first item in a list

```
first_bike = bikes[0]
```

Get the last item in a list

```
last_bike = bikes[-1]
```

Looping through a list

```
for bike in bikes:
    print(bike)
```

Adding items to a list

```
bikes = []
bikes.append('trek')
bikes.append('redline')
bikes.append('giant')
```

Making numerical lists

```
squares = []
for x in range(1, 11):
    squares.append(x**2)
```

Lists (cont.)

List comprehensions

```
squares = [x**2 for x in range(1, 11)]
```

Slicing a list

```
finishers = ['sam', 'bob', 'ada', 'bea']
first_two = finishers[:2]
```

Copying a list

```
copy_of_bikes = bikes[:]
```

Tuples

Tuples are similar to lists, but the items in a tuple can't be modified.

Making a tuple

```
dimensions = (1920, 1080)
```

If statements

If statements are used to test for particular conditions and respond appropriately.

Conditional tests

```
equals            x == 42
not equal         x != 42
greater than      x > 42
  or equal to     x >= 42
less than         x < 42
  or equal to     x <= 42
```

Conditional test with lists

```
'trek' in bikes
'surly' not in bikes
```

Assigning boolean values

```
game_active = True
can_edit = False
```

A simple if test

```
if age >= 18:
    print("You can vote!")
```

If-elif-else statements

```
if age < 4:
    ticket_price = 0
elif age < 18:
    ticket_price = 10
else:
    ticket_price = 15
```

Dictionaries

Dictionaries store connections between pieces of information. Each item in a dictionary is a key-value pair.

A simple dictionary

```
alien = {'color': 'green', 'points': 5}
```

Accessing a value

```
print("The alien's color is " + alien['color'])
```

Adding a new key-value pair

```
alien['x_position'] = 0
```

Looping through all key-value pairs

```
fav_numbers = {'eric': 17, 'ever': 4}
for name, number in fav_numbers.items():
    print(name + ' loves ' + str(number))
```

Looping through all keys

```
fav_numbers = {'eric': 17, 'ever': 4}
for name in fav_numbers.keys():
    print(name + ' loves a number')
```

Looping through all the values

```
fav_numbers = {'eric': 17, 'ever': 4}
for number in fav_numbers.values():
    print(str(number) + ' is a favorite')
```

User input

Your programs can prompt the user for input. All input is stored as a string.

Prompting for a value

```
name = input("What's your name? ")
print("Hello, " + name + "!")
```

Prompting for numerical input

```
age = input("How old are you? ")
age = int(age)

pi = input("What's the value of pi? ")
pi = float(pi)
```

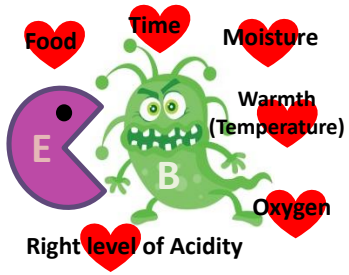

COMPUTING

COOKING

Cooking & Nutrition

Food Spoilage

When a food deteriorates in quality or becomes unsafe to eat it is called **spoiled.** This can happen through natural **decay** caused by **enzymes** or **bacterial contamination**. Both **enzymes** and **bacteria** need the right **conditions** to work. If these conditions are changed then the rate of food spoilage will change. Speeding up if in excess or slowing down if reduced.



Above: ***Conditions*** *needed to cause Food Spoilage* ***(FAT-TOM)***

When foods become spoiled they change texture, shape, taste and their aroma will become more pungent. Strawberries will become very soft, furry, they may start to grow fur, shrink in size whereas bread becomes dry and starts to grow mould

Bacteria: pathogenic microorganism that can cause illness if consumed.

Enzymes: Biological catalysts in living things that speed up chemical reactions. Depending on the circumstance the chemical reaction could start the process of decay, ripening and also browning*.

***Enzymic Browning:** The discolouration (browning) in fruit and veg due to the reaction of enzymes with cut flesh (e.g half an apple) and oxygen.

Consider where would you store vegetables to make them last longer?

Food Poisoning: an illness that is caused by consuming food or water that has been contaminated by specific **pathogenic bacteria** (examples of which are below)

Campylobacter: found in raw poultry and meat, milk and untreated dirty water
E. Coli: found in beef (especially mince beef) raw milk (milk that has not been heat treated), dirty water.
Salmonella: found in raw and undercooked poultry, eggs and raw milk
Listeria: soft cheeses, cheese made from unpasteurised milk, salad vegetables and pates
Staphylococcus Aureus: found on people (especially on hands, nose, mouth, skin, in cuts and skin infections), raw milk, cold cooked meats and dairy products

Contamination: The transfer and subsequent presence of harmful bacteria or chemicals in food or preparation area. There are 4 types of contamination:

Biological Contamination: Any transfer of bacteria from human, animal or food to food or preparation area. Including sneezing, coughing, blood, pus/transfer of bacteria from animal to their food product -meat, eggs, milk/transfer of bacteria from unclean hands

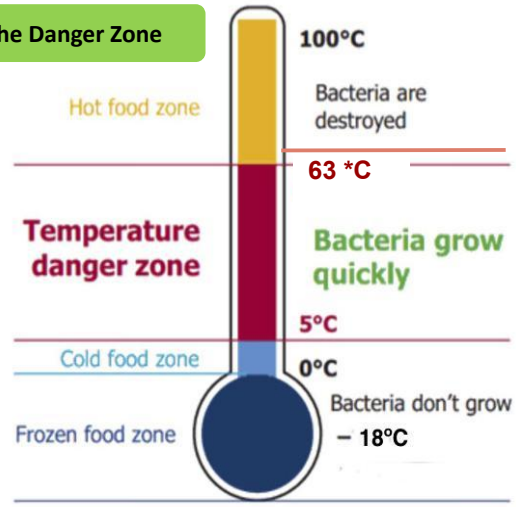
Cross contamination: is an example of biological contamination, it refers to the transfer of bacteria from raw meat to ready to eat foods

Physical Contamination: when a tangible object (you can see or feel) falls into food eg. hair, finger nails, plasters, plastic, dirt. Physical contaminants can act as vehicles to transfer of bacteria

Chemical Contamination: any transfer of chemicals eg, bleach, pesticides, cleaning product and perfume.

The Danger Zone

- The **temperature danger** zone is between 5*C and 63*C, when it is easiest for harmful bacteria to grow in food
- Minimise the time that food spends at these temperatures in order to keep food safe
-Refrigerated food needs to be kept at 5*C of below
- Hot food needs to be kept at 63*C of above



High Risk Foods

High Risk Foods are foods that have the idea conditions for the growth of bacteria. They often are high in protein and moisture. Preventing **cross contamination** is especially important when using high risk foods.

NB: The risk is reduced when food is cooked thoroughly however can return unless consumed or stored correctly. Think **FAT-TOM!**

Food Science: Carbohydrates in Cooking

Dextrinization

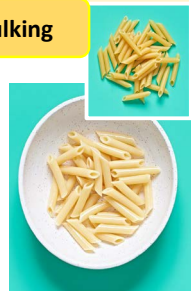
When **dry** (toaster, oven, grill) heat is applied to a **starchy** food (bread/pizza dough, cake, biscuit), the **starch molecules** are broken down into sugars called **dextrins.** This is called **Dextrinization**. The dextrins change the colour (brown) and taste of the food. If the food is overcooked the **starch** turns to **carbon**

Gelatinisation

When **starch molecules** are heated and surrounded by a liquid (like milk) they begin to absorb the liquid, eventually bursting and thickening. This is called **Gelatinisation.** Potatoes are used to thicken soups, cornflour or flour for sauces eg. Cheese sauce, gravy, custard

Bulking

The absorption of water by starchy Foods causing the volume to increase (and becomes softer in texture) eg. Pasta and potatoes. This is known as **Bulking.**



Kneading

When **flour** and **water** are mixed **gluten** is formed. Through **kneading**, gluten is stretched and the dough is more **elastic**. It also creates gluten networks which trap CO_2 released by the yeast.

Caramelisation

When dry heat reacts with **sugar** it caramelizes causing a **sweeten taste** and some change in colour.

Viscosity

Viscosity refers to the flow and thickness of a sauce. The viscosity will be determined by the amount of starch, liquid & level of heat. Using a ratios will help to balance the ingredients

Food in the Wider World: Food Wastage

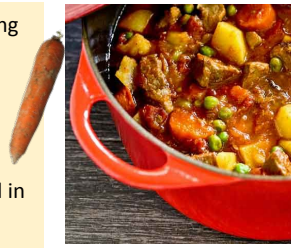
Minimising food waste not only saves the consumer money but also reduces the impact on the environment.

Ways to reduce food waste:

- Plan meals in advance
- Use a shopping list when buying food
- Freeze any leftovers
- Use leftovers in other dishes
- Understand the difference between best before dates and use by dates so to ensure food is eaten in time

Packaging also should be considered to reduce wastage eg. buying food with minimal packaging or packaging that can be easily recycled

Rather than putting old (not spoiled) food in the bin, it can be reused in other dishes for instance 'bendy' veg could be used in a stew or soup.



Leftovers can also be saved to make other meals for instance the beef ragu from a bolognese could be used to make a cottage pie or lasagne. Again not wasting food!

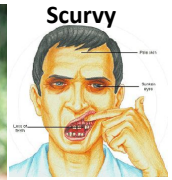
Nutrition & Malnutrition

Food provides your body with the nutrients it needs to work.

Malnutrition is a serious condition that happens when your diet does not contain the right amount of nutrients, this could be too few or too many. Somebody who suffers from malnutrition is malnourished.

Too many nutrients consumed through too much food can result

Kwashiorkor



Scurvy

Too little protein (macronutrient) can result in the condition Kwashiorkor and too little vitamin C (micronutrient)

	Nutrient	Function
MACRONUTRIENTS: Needed by the body in large amounts	**Carbohydrates** Bread, Pasta, Potatoes, Rice, Cereals	-Broken into Starch and Sugar -Starch foods are called complex carbohydrates and release energy over a long period of time. -Sugar are called simple carbohydrate. They release energy quickly. Lactose, Fructose and Sucrose are all Sugars.
	Fibre Whole grain products, skins of fruit & veg	-Prevents constipation -Absorbs poisonous waste from digestive food -Stays undigested but helps move digested food through our system
	Protein Meat, Diary, Eggs, Beans, Chickpeas	-Helps repair and grow new cells (muscles and body tissue) -Acts a secondary source of energy
	Fat Dairy, Meat, Oily Fish, Avocados, Olive Oil	-Insulates the body from the cold -Cushions your bones and organs from any damage caused by knocks. -Stores energy
MICRONUTRIENTS: Needed by the body in small amounts	**Vitamins** Fruit & Veg	They are generally used to: -Controls chemical reactions -Keeping the body healthy and preventing some diseases linked to a poor diet -Regulate the function and repair of cells
	Minerals Fruit, Veg, Meat	They are generally used to: -Turn the food we eat into energy -Build strong bones and teeth - Control body fluids
	Water	-Our bodies are 65% water. It is vital for our body to stay hydrated. -Chemical reactions in our cells take place in water. -Waste products are passed out of our bodies in water. -Our blood transports substances that are dissolved in water. -Water is in sweat that cools us down

COOKING

DRAMA

Genre

Key Definitions

Genre is a category or 'type' given to plays based upon the conventions used e.g. tragedy, comedy, farce and melodrama.
Conventions are the expected features of a particular genre.
The medium is how something is communicated e.g. TV, film, theatre, literature.

Western conventions:

Set in America in later half of 19th century.
Stock characters include cowboys/Indians/Sheriff/outlaws.
Locations include the saloon bar/the desert/the jail.
The shoot out: quick draw.
The stranger arriving in town.
Guns/horses/lassos/cowboy hats/American accents.
The role of women in this genre is limited .
Actors famous for this genre include John Wayne and Clint Eastwood.

Greek theatre started in approximately 500BC.
There were three different genres:
Comedy, Tragedy and Satyr.
Other conventions include use of **mask.**
Originally there was only **one actor**.
A group of actors who performed in unison called the **chorus.**
Always performed outside in an **amphitheatre.**

Self Quiz: LOOK, COVER, WRITE, CHECK & CORRECT

Can you learn the meanings of the key definitions?
Can you give examples of other genres from all 4 mediums?

Medium	Genre	Example 1	Example 2	Example 3
Theatre	Thriller/ Suspense	Woman in Black	An Inspector Calls	
TV	Soap Opera	Coronation Street	Eastenders	
Film	Sci-Fi	Star Wars	Star Trek	
Literature	Gothic	Jane Eyre	Frankenstein	

Doctor Jekyll

Self-Quiz - Look, Cover, Write, Check, Correct

Look and learn these characteristics and quotes about Doctor Jekyll

Well-liked	Distinguished
Smart and presentable	Kind
Respectable	Gentleman
Educated	Reputable
Moral	Intelligent
Embodies virtue	Honourable

"A large, well-made, smooth-faced man of fifty, with something of a stylish cast perhaps, but every mark of capacity and kindness"

"Fond of the respect of the wise and good among my fellow men"

"I concealed my pleasures"

Mr Hyde

Self-Quiz-Look, Cover, Write, Check, Correct

Look and learn these characteristics and quotes about Mr Hyde

Ugly	Countenance of evil
Centred on self	Deformed
Decay	Intimidating
Villainous	Awkward
Beast in man	Depraved
Hissing and snarling	Animalistic
Speaks in short sentences	Embodies evil

"Stumping along"

"Black sneering coolness"

"He spoke with a husky whispering and somewhat broken voice"

"He gave me one look, so ugly that it brought out a sweat on me"

"Abnormal and misbegotten in the very essence of the creature who now faced me – something seizing, surprising and revolting."

Doctor Jekyll and Mr Hyde is a novel written by **Robert Louis Stevenson**.
In 1866 during the **Victorian era**. It is a story about a respectable doctor who drinks a potion to transform himself into a savage murderer.

Victorian Values

In the Victorian era, people were born into a social position/class and this determined their personality/character.

Upper class men were expected to be 'gentlemen'. This meant they were expected to dress, speak and eat in a particular way. They had to abide by the law, and follow religious morals.

Main Theme

The duality of man "man is not truly one, but truly two".

Sentence Stems

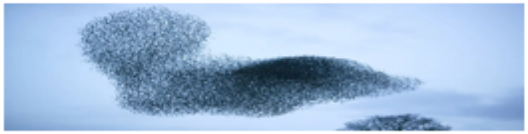
Use the sentence stems to describe how you would show the transformation of Dr Jekyll into Mr Hyde.

What does his transformation symbolise?

When we/I/they describe the drama.

This effectively communicates explain how it links to the intentions to the audience.

Flocking is choral movement by a group of performers. There are examples of flocking below:



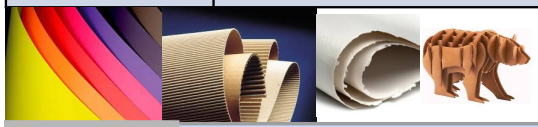
DRAMA

DT

MATERIALS - PAPERS and BOARDS and their PROPERTIES

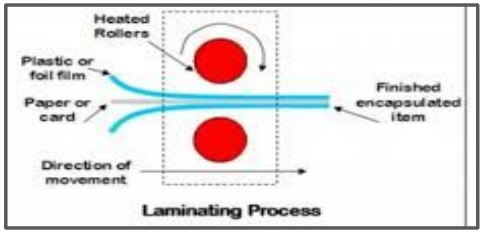
PAPERS

USES	PHYSICAL and WORKING PROPERTIES	ADVANTAGES and DISADVANTAGES
Layout Paper - for tracing design ideas to develop them further	Smooth finish and some transparency, able to see the image or drawing underneath to further develop a sketch.	Strong, low cost but can smudge if altering a drawing with eraser
Copier Paper - for inkjet printing, photocopying	White or coloured with a smooth finish, lightweight and inexpensive in bulk	Readily available and can be printed on easily but not strong and lacks quality
Tracing Paper - for tracing images to copy them	Smooth finish and very transparent, easy to see the image and trace	All sizes readily available but can be expensive for better quality types
Recycled Paper - for toilet paper, paper towels, paper bags	Rough surface, grainy and flexible, can be printed on and coloured	Benefits to the environment and inexpensive but not very strong



BOARDS

USES	PHYSICAL and WORKING PROPERTIES	ADVANTAGES and DISADVANTAGES
Mounting Board - for mounting work and pictures, model making	Coloured surface with white board behind, thick, strong and lightweight	Good quality and available in many colours, but expensive and does not bend easily
Folding Boxboard - for food box packaging	Good printing surface, can be scored, bent and creased easily	Relatively inexpensive but not very strong
Corrugated Board - for packaging boxes, the protection of parcels	Layered card with crimped structure inside, good strength with the option of different thicknesses	Readily available with good impact resistance, but bends easily in one direction and is not water resistant



THE FIVE MATERIAL AREAS

Papers and Boards
Timbers and Manufactured Boards
Thermoforming and Thermosetting Plastics
Metals
Natural and Synthetic Fabrics and Fibres

PHYSICAL PROPERTIES

Absorbency	The ability of a material to soak up moisture, heat or light. Natural materials such as cotton or paper tend to be much more absorbent than synthetic materials such as acrylic or polystyrene.
Density	How solid a material is. This is calculated by dividing mass (grams) by volume (cm3). Lead and iron are dense materials.
Electrical Conductivity	The ability to conduct electricity. E.g. copper is a good conductor of electricity and is used in electronic products and wiring.
Fusibility	The ability of a material to be be heated and joined to another material when heated. E.g. heated lead free solder can be used to join an electronic component to a circuit board
Thermal Conductivity	The ability to conduct heat. E.g. Steel is a good conductor of heat whereas pine is not. As steel or aluminium saucepans get very hot and conduct heat, their handles need to made from a non-conductive or *insulating* material.

WORKING PROPERTIES

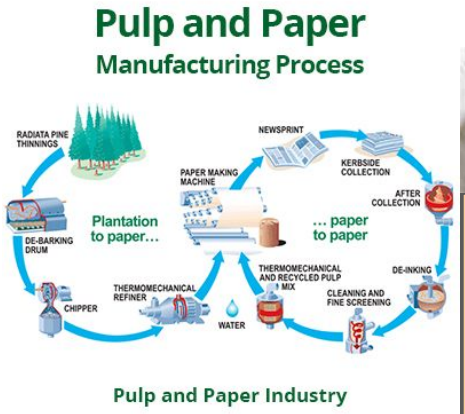
Strength	The ability of a material to withstand compression, tension or shear.Mild steel for example is a good material to make furniture frames because it is strong and can withstand human weight.
Toughness	Materials that are hard to break or snap are tough and can absorb shock. Kevlar in a bullet-proof vest is an extremely tough and impact-resistant material. Phone cases need to be tough.
Hardness	Hardness is the ability of a material to withstand scratching. Phone screens and spectacle lenses need to be hard.
Malleability	Malleability is the ability of a materials to be bent or formed into shape. They will then retain that form. A paper clip is malleable. Car body panels need to be malleable.
Ductility	Ductility is the ability of a material to drawn into a wire or length. Copper is a very ductile material and is used for electrical wiring and cabling.

Size	A10	A9	A8	A7	A6	A5	A4	A3	A2	A1	A0	2A0	4A0
Length (mm)	37	52	74	105	148	210	297	420	594	841	1189	1682	2378
Width (mm)	26	37	52	74	105	148	210	297	420	594	841	1189	1682

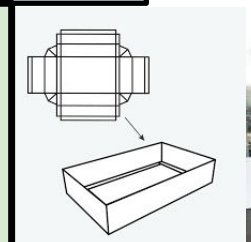
most common sizes used by designers

Social and Ecological Issues

A great number of trees have to be cut down in order to manufacture **'virgin' paper**.
Paper and board can only be recycled seven times before it has to be mixed with new fibres.
It is important to **recycle** paper and boards as this will have less impact on the environment through factors such as deforestation, which can then lead to soil erosion.
Deforestation has a huge effect on the ecosystem and the people and specific breeds of animals that rely on them, affecting the **biodiversity**.



Design Context - Situation that creates opportunities for design.
Design Brief - An instruction from a client to a designer. A short statement of intention.
Stakeholders - Anyone interested in, connected to, involved with or affected by a design situation.
Primary User - The person who will need and use the product the most. The person with the greatest design need.
Design Specification - A list/set of design requirements that come researching the needs of stakeholders or primary users.



Tools and Equipment

Craft Knives,
Safety Rulers,
Cutting Maps,
Masking Tape,
Paper Fasteners.

DESIGN CONSIDERATIONS

- Cost
- Availability
- **Aesthetic**
- Functionality
- Environmental
- Social
- Cultural
- Ethical

Sources and Origins

Paper is made from new fibres or **recycled** material. **Wood pulp** is obtained by cutting down trees and breaking down the wood. The bark and chippings are then removed and ground down or cooked with chemicals to extract the **cellulose** fibres. **Softwood trees** are traditionally used to create wood pulp as the fibres are longer, making stronger paper; some manufacturers plant new trees for each one they chop down.

The pulp is filtered, squeezed, bleached and pounded before other materials, such as chalk or chemicals, are added to change the **opacity** and **absorbency** of the paper. The excess water and chemicals are drained out of the pulp by pushing it through sets of rollers, called **'calenders'**, before being shaken and blown to dry out the fibres. This process is repeated until the pulp is fully dried, and then it is pressed to create a smooth finish.

mechanical pulp - by **mechanically grinding** the wood chips down into paper pulp, used for lower grade papers such as newspapers.

chemical pulp - uses **chemicals** to reduce the wood chips down and dissolve into cellulose fibres to make the paper pulp, used for higher quality paper.

Additional **treatments**, or **'coatings'**, can be added to give the paper different **aesthetics**.

DT

ENGLISH

ROMEO AND JULIET - PLOT

Act 1 	In Italy two noble families, the Montagues and Capulets, have much bad blood between them. Romeo, son of old Montague, is in love with Rosaline, who disdains his love. As a result, Romeo is depressed. To cure him of his love, his friend Benvolio induces him to attend a masked ball at the Capulets, where he could encounter other beauties and forget Rosaline. At the ball, Romeo is attracted by a girl who he learns is Juliet, daughter of the Capulets. They seal their love with a kiss.
Act 2 	Romeo lingers in Capulet's garden, standing in the orchard beneath Juliet's balcony. He sees Juliet leaning over the railing, hears her calling out his name, and wishes that he were not a Montague. He reveals his presence, and they resolve, after an ardent love scene, to be married secretly.
Act 3 	Tybalt encounters Romeo returning from Friar Lawrence's cell. Romeo, softened by his newfound love and his marriage to Juliet, refuses to be drawn into a quarrel with Tybalt, now his kinsman by marriage. Mercutio grapples with Tybalt and is killed. Aroused to fury by the death of his friend, Romeo fights with Tybalt and kills him and takes shelter in the Friar's cell.
Act 4 	In despair, Juliet seeks Friar Lawrence's advice. He gives her a sleeping potion, which for a time will cause her to appear dead. Thus, on the day of her supposed marriage to Paris, she will be carried to the family vault. By the time she awakens, Romeo will be summoned to the vault and take her away to Mantua.
Act 5 	The Friar's letter fails to reach Romeo. When he hears of Juliet's death Romeo buys a deadly poison from an apothecary and secretly returns to Verona to say his last farewell to his dead wife and die by her side. At Juliet's side, Romeo drinks the poison and dies. When Juliet awakens from her deep sleep, she realises Romeo's error and kills herself with his dagger.The Capulets and Montague decide to reconcile as a result of the deaths of their children.

Themes

Love: The love Romeo and Juliet have for eachother is passionate and they would give anything for it. Likewise it is destructive and chaotic.

Fate: Shakespeare conveys the power of fate and the idea that our futures are mapped out by God no matter what we do.

Violence/ Conflict: Conflict rules the characters' lives in Romeo and Juliet. Shakespeare explores the futility of conflict and violence.

Gender: Both Romeo and Juliet are pressured to conform to the oppressive gender roles.of their society. In the play, masculinity is often linked to violence, while women are expected to be submissive.

Romeo Montague	Intense, intelligent, quick witted, and loved by his friends.
Juliet Capulet	Naïve and sheltered at the beginning, develops into a woman with strength. Grounded.
Mercutio	Romeo's close friend. Wild, playful and sarcastic
Tybalt	Juliet's cousin. A hothead consumed by issues of family honour. Hates the Montagues.
Benvolio	Romeo's cousin, less quick witted than Romeo and Mercutio, tries to keep the peace.
Friar Laurence	A Franciscan monk and a friend to both Romeo and Juliet.
Nurse	Juliet's best friend and confidante, and in many ways is more her mother than Lady Capulet is.
Prince Escalus	Leader of Verona, concerned with keeping order between the warring families.
Paris	Nobleman given permission to woo Juliet initially, then to marry her after Tybalt's death. Killed by Romeo.
Lord Capulet	Patriarch of the Capulets,Arranged marriage for Juliet, quick to anger when disobeyed.

Subject Vocabulary

tragedy: a play with an unhappy ending, featuring the downfall of the main character

oxymoron: two contradictory terms

soliloquy: a monologue addressed to oneself

shared sonnet: a sonnet spoken by two people

patriarchal: society run by men

foreshadow: predict a future event

Romeo and Juliet Vocabulary

brawl: a fight

mutiny: open rebellion against authority

unreciprocated: not returned

feud: a prolonged disagreement

banish: to send away for good

duel: contest with deadly weapons

honour: having high respect

futile: pointless

authoritarian: enforcing strict obedience

superficial: surface level

predestination: idea that God has decided all that will happen

impulsive: acting without thinking

Context

Courtly Love and cures for lovesickness: common in medieval literature where a knight was consumed with passion for an unattainable noblewoman; Romeo fits this perfectly. Elizabethan doctors saw unrequited love or desire as a disease, sometimes called lovesickness. They tried various cures and sometimes sent patients to church to confess to a priest. They believed that it could lead to madness.

Arranged marriages: Marriages amongst the wealthy were arranged by parents in order to match or improve social standing. However, in practice, parents did try to choose someone their child liked and was happy to marry. Secret marriages such as that between the young Romeo and Juliet would have been both illegal and shocking.

Role of women in a patriarchal society: Elizabethan England was a society controlled by men. Women were seen as the weaker sex and were expected to be meek and mild, and most importantly, obedient to their fathers and their husbands.

Duelling and the concept of honour: Maintaining the honour of your family name was hugely important. If you were challenged to a duel and you refused, you would be deemed a coward, thus damaging your honour and the status of your family. Most Elizabethan gentlemen carried swords in public and many did fight in the streets.

Tragic Hero: A Tragic Hero is the protagonist who has sympathetic traits but who meets a tragic end. Romeo is considered a tragic hero because he is of noble birth, strikes fear into the audience through his demise and allows his tragic character flaw to influence his choices which consequently leads to his downfall.

ENGLISH

Descriptive techniques

Technique:	Example:
Personification - a metaphor attributing human feelings to an object.	***Thunder roared*** *in the dark skies.*
Onomatopoeia - words that sound a little like they mean.	*"cheeping feebly" and "grunting"*
Pathetic fallacy - using the weather to create or reflect a certain mood.	*"Day after day, a vast heavy veil had been driving over London from the East" (Great Expectations)*
Metaphor - a descriptive technique that names a person, thing or action as something else.	*"There was a stormy debate over the correct retiring age of each animal."*
Simile - a descriptive technique that compares one thing with another, usually using 'as' or 'like'.	*"She felt like a prisoner in her own mind"*

Key Subject Terminology

Blank verse	Verse without rhyme, especially that which uses iambic pentameter
Dramatic irony	A comparison in which one thing is said to be another.
Foreshadowing	A literary device in which a writer gives an advance hint of what is to come later in the story
Iambic pentameter	A line of verse with five metrical feet (10 syllables total), each consisting of one short (or unstressed) syllable followed by one long (or stressed) syllable
Imagery	Language used to represent objects, actions, and ideas in such a way that it appeals to our physical senses and creates a vivid image in the reader's mind
Imperative	A type of sentence (often beginning with a verb) that expresses an instruction, command or order.
Interrogative	A type of sentence that asks a question.
Rhyming verse	Verse that has a rhyme scheme (i.e. lines end with rhyming words)
Sonnet	A poem that has 14 lines and a particular pattern of rhyme (ABAB CDCD EFEF GG)
Semantic field	A set of words related in meaning

Sentences

Technique:	Example:
Simple Sentence: One clause. Contains a subject and verb. Makes sense by itself.	*She ran.* *She was home.* *They were bored.*
Compound Sentence: two sentences joined by FANBOYS conjunctions	*She was scared,* ***yet*** *she kept walking.* *She was scared,* ***but*** *she stopped walking.*
Complex sentence: main clause (makes sense on its own) and at least one subordinate clause (does not). The subordinate clause can be used.	*She scanned the room squinting through the hole in the stone.* *Squinting through the hole in the stone, she scanned the room.*
Minor Sentence: An incomplete sentence missing a subject or verb used for effect.	*Look!* *Weird!*
Coordinating Conjunctions - join two main clauses to create a compound sentence	FANBOYS For/And/Nor/But/Or/Yet/So *The majestic bird soared through the clear blue sky* ***and*** *the wind whistled melodically.*
Subordinating Conjunctions - start subordinate clauses which help create complex sentences	**I**f/ **S**ince/ **A**s/ **W**hen/ **A**lthough/ **W**hile/ **A**fter/ **B**efore/ **U**ntil/ **B**ecause (**ISAWAWABUB**) ***Although*** *it had been raining, the ground was dry.* *It had been raining* ***although*** *the ground was dry.*

Structuring fiction (story writing)

Drop	Start in the middle of exciting action
Zoom	Choose something that you will 'zoom in' on and describe in detail
Flash	Change the time or place of your story
Echo	Bring it back to where you were at the start. What has changed?

Drop - Sentence Starters

In that moment...
All around, I could feel...
A sudden gust of hot air blew, pushing...
The music pounded louder and louder until...

Zoom - Sentence Starters

Immediately, the colours of the ___ caught my eye…
The subtle shades of

Flash - Sentence Starters

It had only been a few hours ago when..
Earlier that morning..
The streets had been deserted when...
Back at home..

Echo - Sentence Starters

The _____ grew louder than ever before…
Repeat a word / phrase / image from the start

Globalisation & TNCs

Globalisation is the process by which the world is becoming increasingly interconnected as a result of massively increased trade and cultural exchange. It has increased the production of goods and services. The biggest companies are no longer national firms but TNC's operating in many countries. Globalisation has been taking place for hundreds of years, but has sped up enormously over the last half-century.

Key Terms	
Containerisation	A shipping method where products are packed into large standard size containers that are easily stacked onto huge ships and transported around the world. All containers across the world are the same size.
Head quarters	Or Head office is the main office where the management decisions are made for example marketing & design
Infrastructure	The built systems needed for a country to operate for example roads, bridges and equipment such as communications
Outsourcing	Moving parts of the business or getting resources from other countries usually because they are cheaper.
Positive multiplier effect	Knock on benefits from the industry or trade in an area. For example taxes paid by TNCs can be used to improve schools
Sweatshop	A factory where there are very poor working conditions, often illegal. Workers will work for long hours with little pay.
Tax	An amount of money paid to the government from income
TNC	A large company operating in many countries e.g. Mcdonalds
Trade	The buying and selling of goods
Westernisation	The spread and adoption of western culture

Why has globalisation increased?

TNC's – More global companies means there has been an increase in trade and relationships between countries. Products are available globally spreading culture and ideas.

Communication and Technology – The internet, Wi-Fi and mobile phones mean thoughts, trends and information can be shared instantly around the world. Meetings can be held virtually allowing business and trade to take place with companies in different time zones.

Transport – This has become cheaper, quicker and can carry you further so it is easier for people and products to be moved around the world. Containerisation has enabled products made in other countries to be quickly and more cheaply transported.

Governments – Now work with each other more than ever to try to solve global problems such as climate change. There are many intergovernmental organisations such as the UN and world bank that help to spread globalisation.

Freedom of Trade – organisations such as the World Trade Organisation (WTO) promote free trade between countries which helps to remove barriers between countries

Labour - countries such as India have lower labour costs (about a third of that of the UK) and also high skill levels. Labour intensive industries such as clothing can take advantage of cheaper labour costs and reduced legal restrictions in LEDCs

Globalisation is bad?

Increases the development gap between the rich and the poor as richer countries as profits from TNCs stay in developed countries.

Increase in pollution and climate change from the increasing transport of goods and factories

Environmental concerns as raw materials are extracted destroying habitats.

Viewed as a **threat to the world's cultural diversity** as local heritage is changed

Thriving industry in developing countries is at the **expense of industry in developed** such as the UK in Stratford where many areas face decline and unemployment

Absence of strict laws means that many people work in poor conditions

Globalisation is good?

Investment from TNCs helps countries by providing new **jobs** and skills for local people increasing the wealth of people

The sharing of ideas, experiences and lifestyles of people and cultures. People can experience foods and other products not previously available in their countries.

Globalisation **increases awareness** of events in faraway parts of the world. For example, the UK was quickly made aware of the 2015 Nepal earthquake

Globalisation may help to make **people more aware of global issues** such as deforestation and global warming and alert them to the need for sustainable development.

What is glocalisation? Glocalisation is a combination of the words 'globalisation' and 'local' it describes when a globalised product or idea that is spread around the world is adapted to local cultures and tastes to make it more accessible, understandable or desirable to different people. A good example is McDonalds who sell products such as the McFalafel in Israel where Big Mac burgers would not sell well. This means McDonalds makes more profit in additional markets. Links: BBC Bitesize

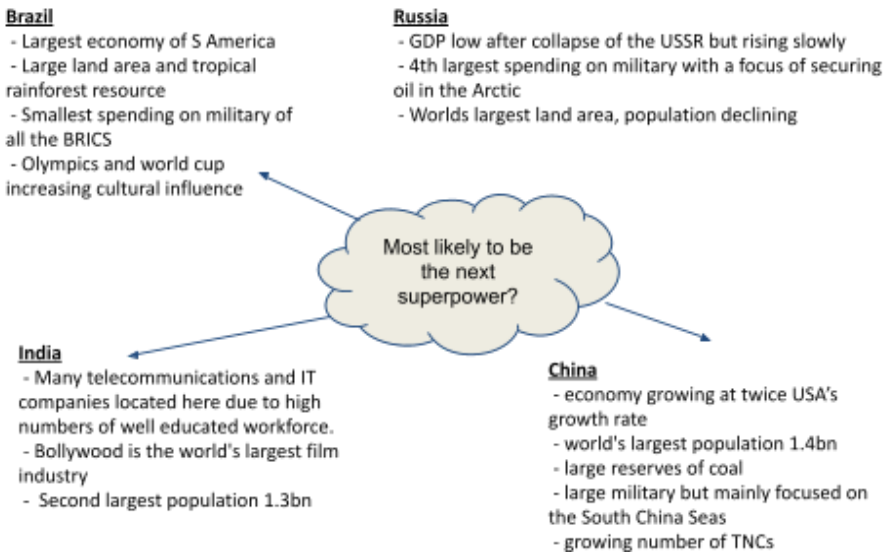
The rise and fall of superpowers

Superpower - a country which is able to project its power and influence anywhere in the world. It is a dominant global force. Countries can exert their influence using a direct or indirect control over others.
Links: BBC Bitesize - China & India Russia

How have patterns of power changed since the British Empire?	
Imperial Era 15th - 19th C	European countries dominated through land grabbing. The British Empire was the superpower when in controlled 1/4th of the world. It used direct control including military power, exporting resources, using people as slaves and spreading British culture to maintain power.
Inter war 1919-1930	Colonies began to break away from European control and the USA was now the biggest economy. Britain's superpower status declined.
Cold War 1947-1991	The USSR was growing rapidly due to oil and steel exports and became a rival superpower to the USA with opposing ideologies. They entered a cold war where they used indirect soft power to challenge each other.
1991 Present	USA remained the superpower dominating the economy, trade and international decision making.
Future	RIse of the **BRICs**? Possible return to a time where there is more than one dominant superpower.

Key Words	
BRICs	A group of countries that could be the next superpower. Brazil, Russia, India & China.
Emerging power	A country the is growing significantly in power and beginning to extend a more global influence.
Hard power	Power through force for example using military strength.
Soft power	Power through persuasion or favours for example through ideas in films, the censorship of the internet or chosing to give of aid to certain countries.
Sphere of influence	The geographical area over which a country can assert its authority.

Characteristics of a super power
Economic power - High levels of trade in countries with large numbers of transnational companies (companies that operate all over the world) creates wealth. When a country has a high spending power they can dictate trade terms and spend money developing their country further.
Political power - Being members of a number of economic and political organisations such as the UN and the world bank allows countries to influence others through the decisions that are made.
Military power - spending money developing the newest military equipment, weapons and intelligence services can secure territory, protect populations and gain resources .
Cultural power - cultural ideas can be spread through food, music, films and used to influence others ideologies.
Resource power - having large reserves of natural resources such as coal, oil or metals can be used to make products or sell the resources to other countries. A large population is both a workforce and a market for goods. A larger population can help spread cultural power.



GEOGRAPHY

HISTORY

Global Conflict in the 20th Century

Summary: Why was the 20th Century so bloody?
This term, we will be looking at different conflicts in the 20th Century. Each week we will learn about the causes of conflicts, the key events and the consequences of them. By the end of this term, you will be able to explain the significance of these conflicts and why the 20th Century was so bloody?

Key concepts

World War One: 1914-1918

Key causes:

1. **M**ilitarism
2. **A**lliances
3. **I**mperialism
4. **N**ationalism

Key Consequences:

ToV: The treaty blamed Germany for the war and punished them militarily, territorially and financially.
Women's rights: WW1 had a dramatic effect on women's lives and led to several political, social and economic advancements for women.
Technological advances: New weapons and technologies were developed and used that led to more destruction than any war had seen in the past. WW1 triggered the advancement of many medical advances and technologies.
mass poverty

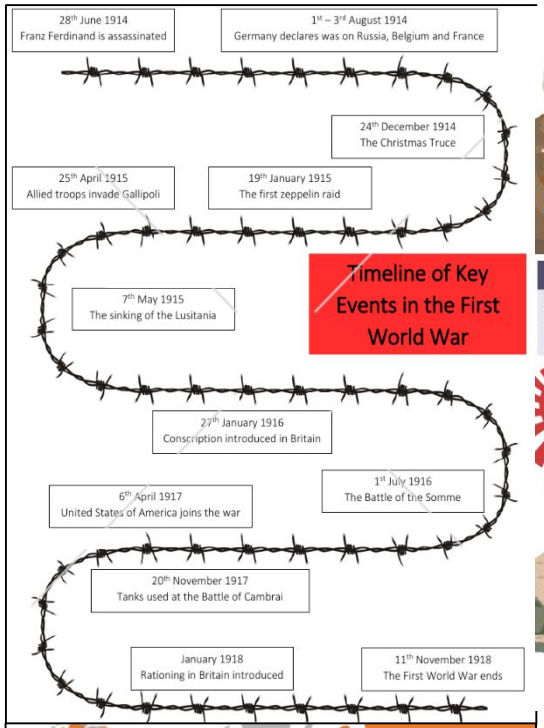
World War Two -1939 -1945

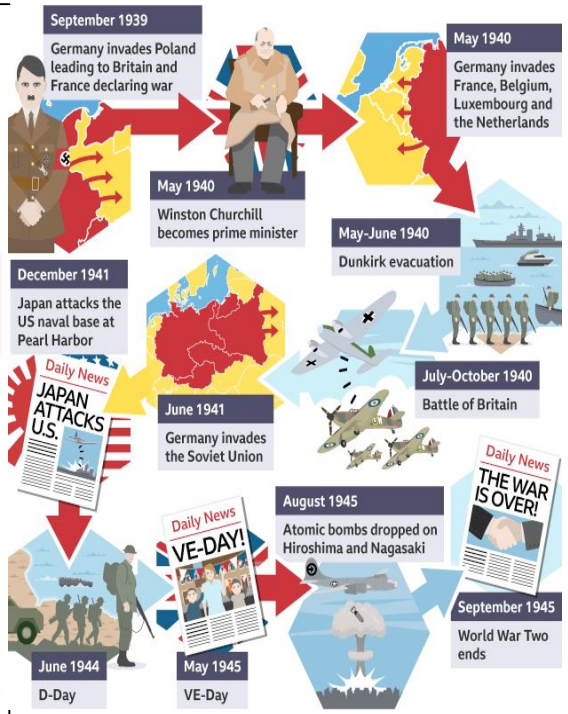
Key causes:

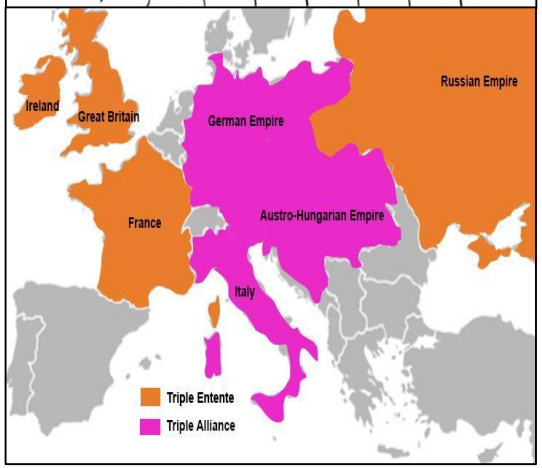
- **Treaty of Versailles**
- **Appeasement**
- **German Militarism** - *Hitler immediately began secretly building up Germany's army and weapons.*
- **Japan's militarism:** I*n order to produce more goods, Japan needed natural resources for its factories. The Japanese army invaded China, an area rich in minerals and resources.*
- **Economic Depression:** *The whole world was hit by an economic depression in the late 1920s.*

Key Consequences:

Cold War: Competition increased between two superpowers (USA and USSR) causing a nuclear arms race
Decolonisation: WW2 led to decolonization of Africa by affecting both Europe and Africa militarily, psychologically, politically, and economically.







Global Conflict in the 20th Century

Summary: Why was the 20th Century so bloody?

This term, we will be looking at different conflicts in the 20th Century. Each week we will learn about the causes of conflicts, the key events and the consequences of them. By the end of this term, you will be able to explain the significance of these conflicts and why the 20th Century was so bloody?

Key events

WW1 Key Events:

Gallipoli- This attack on Germany's ally, Turkey, featured a large number of Australian and New Zealand troops fighting in support of Britain and France. More than 100,000 troops were killed and hundreds of thousands more were wounded. But victory came at a terrible cost.

Somme- The Battle of the Somme is remembered as one of the most deadly battles ever fought. Staring on 1 July 1916, It lasted for 5 months and in total there were around 500,000 British, 430,00 French and 600,000 German casualties.

Passchendaele- Fought from 31 July to 6 November 1917, famous for the scale of casualties, and also for the mud. Passchendaele cost the Allies 325,000 casualties and Germany 260,000 casualties. The Allies only gained five miles of territory in the offensive (attack).

100 Day Offensive- The Hundred Days Offensive was a series of attacks by the Allied troops at the end of World War I. Starting on August 8, 1918, and ending with the Armistice on November 11, the Offensive led to the defeat of the German Army.

WW2 Key Events:

Dunkirk- The evacuation from Dunkirk, involved the rescue of more than 338,000 British and French soldiers from the French port of Dunkirk between 26 May and 4 June 1940.

Pearl Harbour- A turning point for support for America's involvement in World War Two came on 7 December 1941. Japanese planes attacked the US navy at Pearl Harbor, which was on the Hawaiian island of Oahu. More than 2,400 Americans were killed and around 350 US aircraft and 20 warships were damaged.

D-Day- On June sixth 1944, thousands and thousands of American, British and Canadian troops landed on the beaches. This operation that paved the way for the Allied forces' eventual victory over Nazi Germany.

Battle of Okinawa- On 1 April 1945, The Battle of Okinawa was a victory for the US but resulted in massive casualties on both sides.

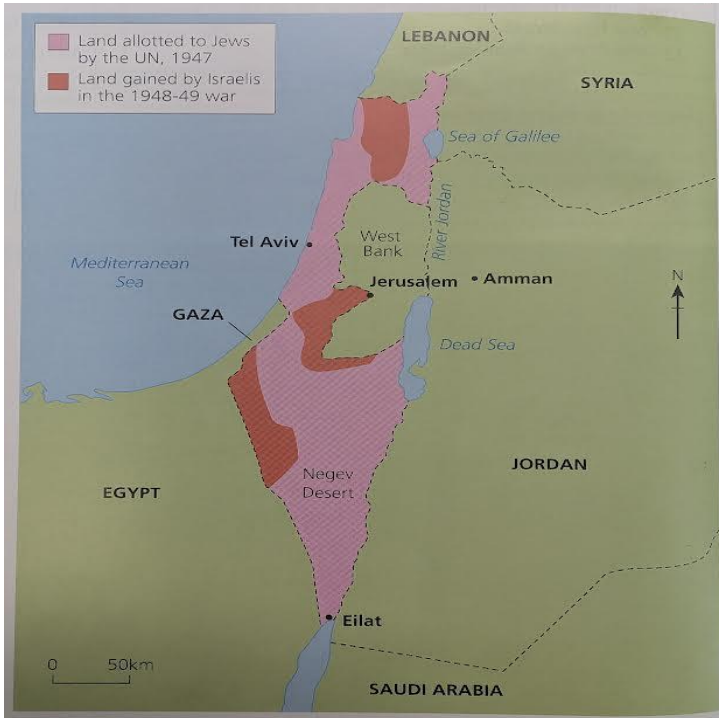
Key words

Nationalism	Belief in and pride in the power of your own country. This can lead to competition between countries
Militarism	When countries compete to build up their armies, navies and weapons stores. This can lead to suspicion and competition
Imperialism	When countries want to expand their own empire by invading, colonising and taking over other countries and absorbing them into their empire
Independence	When a country wants to run itself and not be governed by another power
Ideology	A set of beliefs, usually political. When powerful groups have different ideologies this can lead to conflict
Conflict	A serious clash, in this case referring to war
Arms Race	Competitive growing of militaries between two countries
Liberation	The act of setting someone (or a country) free from the rule of another country or power
Alliance	A relationship or union based on two countries having similar interests
Treaty	A formal agreement between two or more countries
Treaty of Versailles	The Treaty of Versailles was a peace agreement that marked the end of World War One. The treaty was signed on 28 June 1919.
Communism	An ideology in which there is a classless society, production is communal, everyone is equal - government is authoritarian in the case of the USSR
Capitalism	An ideology in which a country's trade and industry is own privately for profit - democratic leadership in the case of the USA
Appeasement	Allowing something to carry on in order to avoid conflict
Resolution	The process of two conflicting countries reaching an agreement to move forward

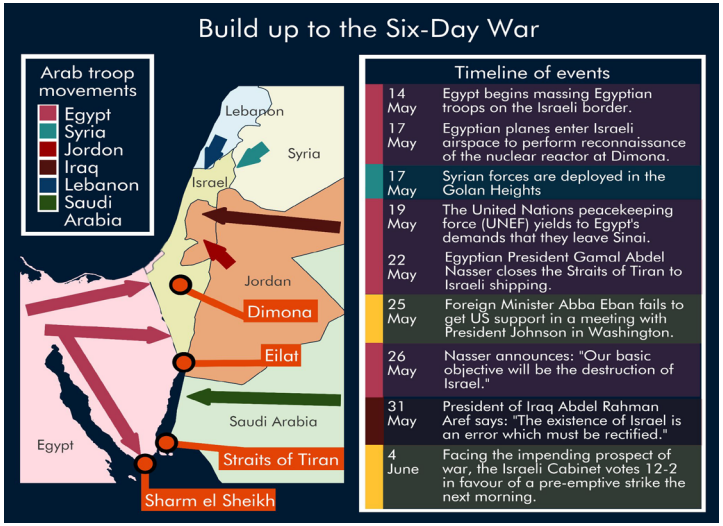
HISTORY

HISTORY

Key concepts	
5	**Mau Mau Uprising - 1952-1960** **Key Causes:** **Imperialism:** The British empire made laws that took away Africans' rights to their own land which they had been farming for years. After WWI lots of soldiers were housed in Kenya, causing anger and resentment. **Nationalism**: The nationalist movement that emerged became known as the Mau Mau. The Kikuyu were targeted by the British as nationalists and 20,000 were killed. ***Consequences:*** The Mau Mau rebellion officially ended in 1960, when British authorities declared a state of emergency and arrested the majority of the Mau Mau leaders. However, the movement had a profound impact on Kenya's struggle for independence, and is seen as a key event in the country's history.
6	**Conflict in the Middle East-1914 -Present** **Long Term Causes:** **Arabs under Ottoman Rule:** The Ottomans used force to make some nomadic Arab groups settle in one place, others remained independent. ***The British Mandate:*** After the war Britain was given a mandate to control Palestine. **Short Term Causes** ***British withdrawal*-**Britain handed control over to the UN in 1948. ***UN Resolution 181***-Jewish population given 56% of Palestine (Israel) with the Arabs given the 43% to the Arabs. Jerusalem was international zone. ***Suez Crisis:*** tensions increased with Egypt and Arab nationalism grew ***Foreign involvement:*** USSR backed Arab nations, US backed Israel ***Events:*** ***1948 Arab-Israeli War*** ***6 Day War:*** 5-10 June 1967 **Consequences:** ***Un resolution 242 1967*** -Israel must withdraw from Palestine ***Palestinian refugees*-**huge surge of refugees on the Gaza Strip **Increase in terrorism-** Attacks increased e.g. Munich Olympics killings



▲ **Figure 1.6** Land acquired by Israel following the Arab–Israeli War



Skills focus:
Investigating causes and consequences of significant global events
How do historians form interpretations?
Understanding historians interpretations of causes and consequences of global conflict
Using contextual knowledge to support or challenge an interpretation
Using contextual knowledge to build an argument as to how far you agree with an interpretation
Using contextual knowledge to build our own historical interpretations

Memory Maths Booklet

Pathway X and A	Pathway B, C and D
KO1 I know how to find upper bounds and lower bounds and error intervals	KO1 I know the metric conversion units for length, weight, capacity and time
KO2 I know the rules for standard form	
KO3 I know the formula for completing the square	KO3 I know the quadratic formula
KO4 I know the exact trigonometric values	KO4 I know the trigonometric formulae
KO5 I know the properties of a parallel line and the properties of a perpendicular line	KO5 I know how to find the gradient on a linear graph
KO6 I know the formulae for compound and simple interest	
KO7 I know the formula for finding the constant of proportion	KO7 I know the properties of ratios
KO8 I know the formulae of surface area and volume of prisms, cones and pyramid	KO8 I know how to find the surface area and volume of cuboids and cylinders
KO9 I know formula for finding geometric and quadratic sequences	KO9 I know the nth term rule
KO10 I know the different inequality symbols and how it is represented on a linear graph	KO10 I know the different inequality symbols and how it is represented in a number line

MATHS

MATHS

Pathway X and A

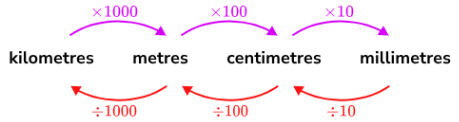
KO1

Operation	Rule
Adding	Upper bound -> upper bound + upper bound Lower bound -> lower bound + lower bound
Subtracting	Upper bound -> upper bound (big) – lower bound (small) Lower bound -> lower bound (big) – upper bound (small)
Multiplying	Upper bound -> upper bound x upper bound Lower bound -> lower bound x lower bound
Dividing	Upper bound -> upper bound ÷ lower bound Lower bound -> lower bound ÷ upper bound

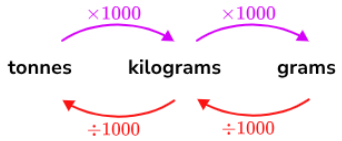
Pathway B, C and D

KO1

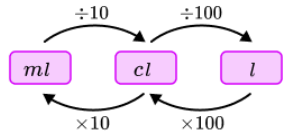
Length



Mass



Capacity



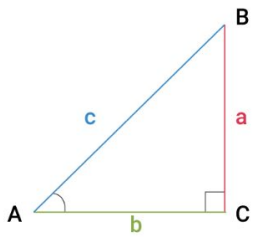
Time

KO2

Numbers in standard form are written in this format: $a \times 10^n$

Where **a** is a number **1≤ a < 10** and **n** is an **integer.**

MATHS

Pathway X and A	Pathway B, C and D
KO3 Completing the square formula If , $y = x^2 + bx + c$ Substitute b and c below to complete the square $y = (x + \frac{b}{2})^2 + c - (\frac{b}{2})^2$	**KO3** Quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
KO4 $\begin{array}{\|c\|c\|c\|c\|c\|c\|}\hline & 0^\circ & 30^\circ & 45^\circ & 60^\circ & 90^\circ \\ \hline \sin(\theta) & 0 & \frac{1}{2} & \frac{1}{\sqrt{2}} & \frac{\sqrt{3}}{2} & 1 \\ \hline \cos(\theta) & 1 & \frac{\sqrt{3}}{2} & \frac{1}{\sqrt{2}} & \frac{1}{2} & 0 \\ \hline \tan(\theta) & 0 & \frac{1}{\sqrt{3}} & 1 & \sqrt{3} & undefined \\ \hline \end{array}$	**KO4** SOH – CAH - TOA  $\text{sine of } \angle A = \sin A = \frac{Opposite}{Hypotenuse} = \frac{a}{c}$ $\text{cosine of } \angle A = \cos A = \frac{Adjacent}{Hypotenuse} = \frac{b}{c}$ $\text{tangent of } \angle A = \tan A = \frac{Opposite}{Adjacent} = \frac{a}{b}$
KO5 Two non-vertical lines with slopes m_1 and m_2 are: **Parallel** if the lines have the same slope, $m_1 = m_2$. **Perpendicular** if the slopes are negative reciprocals, $m_2 = -\frac{1}{m_1}$ or equivalently, if $m_1 \cdot m_2 = -1$.	**KO5** $y = mx + c$ y-coordinate, x-coordinate gradient, y-intercept

MATHS

Pathway X and A	Pathway B, C and D

KO6

Simple interest

$I = p \times r \times t$

Compound interest

$A = P(1 + r)^t$

I = interest earned after t years

p = money borrowed or invested

r = annual interest rate

t = the length of time you borrow or invest

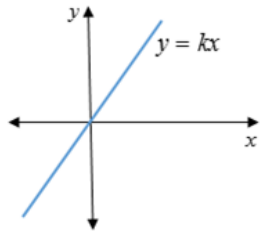
A = accumulated amount

KO7

Constant of Proportionality

The constant of proportionality, ***k***, is the constant value of the ratio of two proportional quantities ***y*** and ***x***.

$k = \frac{y}{x}$ or $y = kx$



KO7

Properties of ratios

1. Ratio has no units.

   Example: Ratio of 4m to 7m is written as 4:7 and not as 4m:7m.

2. Quantities of a ratio should be of the same unit

   In the above example both the numbers have same unit m

3. Each number of the ratio is called term.

   In the ratio 4:7, the numbers 4 and 7 are called as term.

4. Order of the terms in a ratio cannot be reversed

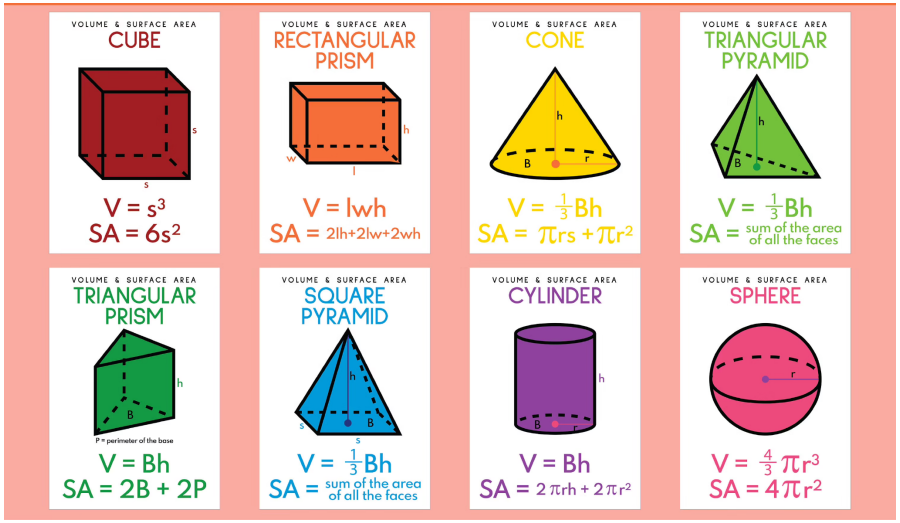
   Ratio we get by reversing the term of given ratio are not same

   The ratio 4:7 is not equal to ratio 7:4

Pathway X and A	Pathway B, C and D

KO8

Pathways B,C and D only need to know about cube and rectangular prism (cuboid)



KO9

Quadratic sequence

$$an^2 + bn + c$$

n	1	2	3
	$a(1)^2 + b(1) + c$	$a(2)^2 + b(2) + c$	$a(3)^2 + b(3) + c$
Nth term rule	$= a + b + c$	$= 4a + 2b + c$	$= 9a + 3b + c$
1st difference		$3a + b$	$5a + b$
2nd difference			$2a$

KO9

Linear sequence

$$a_n = a_1 + (n-1)d$$

n^{th} term; a_1 first term; n term position; d common difference

K09 continued
Geometric sequence

$$a_n = a_1 (r)^{n-1}$$

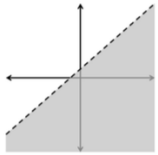
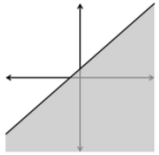
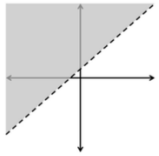
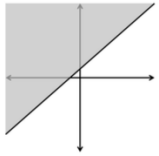
$a_n =$ nth term

$a_1 =$ first term

$r =$ common ratio

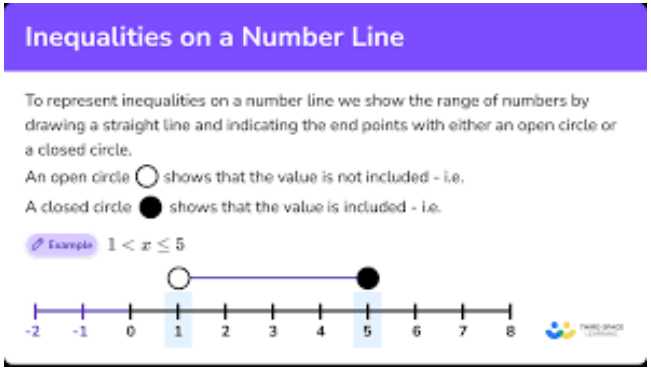
$n =$ term position

KO10

Graphs of Linear Inequalities	
$y < 2x + 1$ *If the inequality sign is "less than," the line is **dashed** and shading occurs **below** the line*	
$y \leq 2x + 1$ *If the inequality sign is "less than or equal to," the line is **solid** and shading occurs **below** the line*	
$y > 2x + 1$ *If the inequality sign is "greater than," the line is **dashed** and shading occurs **above** the line*	
$y \geq 2x + 1$ *If the inequality sign is "greater than or equal to," the line is **solid** and shading occurs **above** the line*	

KO10

Greater than	$>$
Greater than or equal to	$\geq$
Less than	$<$
Less than or equal to	$\leq$
Not equal to	$\neq$



RHYTHMS OF THE WORLD

Year 9 - DPR 1

MUSIC

MUSICAL ELEMENTS

Melody - formal word for 'tune'
Articulation - how you play / sing a note
Dynamics - how loud or soft a note is played
Texture - how the layers of a musical piece fit together
Structure - the different sections of a piece and how they are ordered
Harmony - how notes work together to make an effect
Instrumentation - which instruments or voices are used
Rhythm - pattern of notes over time
Tempo - the overall speed of the music
Time Signature - how the beats are arranged in music (metre)

RECOMMENDED LISTENING

Greek Folk Music: Effi Netzer
Samba: Effi Netzer
Israeli Folk Music: Effi Netzer
Arabic Folk Music: Le Trio Jourban
African Drumming:

GREEK FOLK MUSIC

Folk music heard in Greece, featuring **bouzouki**, **violin,**

Irregular time signature: Time signature with uneven beats, typical in Greek music

Tremolo: repeated notes played very fast

Bouzouki: Greek stringed instrument

ISRAELI FOLK MUSIC

Uses Western instruments and musical features, inspired by European **klezmer** music

Accelerando: Increasing tempo during a piece of music - common in Israeli music

Accordion: Keyboard instrument played with reeds and bellow

Syncopation: Playing notes or chords on the offbeat

SAMBA

Percussion music heard in Brazil during carnival.
A samba ensemble is called a **bateria.**

Pulse: a steady beat throughout a piece of music

Repinique: the leader of a samba ensemble

Surdo: the largest drum in a bateria

ARABIC FOLK MUSIC

Traditional music featuring **oud**, **doumbek** and voice.

Maqam: Arabic melodic system

Wazn: Arabic rhythmic system

Melisma: Singing many notes on one syllable

Oud: Arabic stringed instrument

Freetime: playing without a sense of pulse

AFRICAN DRUMMING

Percussion music from West Africa, using **djembe**
Led by a master drummer
Learned through oral tradition

Djembe: hand drum played in West Africa

Dun dun: large drum played with a stick

Polyrhythm: many rhythms played at the same time

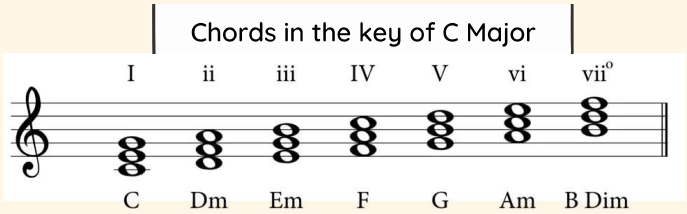
MUSIC

SONGWRITING

Year 9 - DPR 1

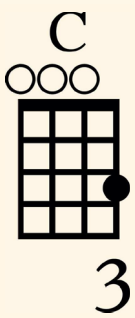
KEY

A song's key tells us which chord is the **home chord**. Moving away from the home chord builds **tension**, moving towards it creates **release**



CHORD SEQUENCES

Songs are based on a repeating series of **chords** called a chord sequence



MELODY

Melodies (tunes) are built from chord sequences using **chord tones** and **passing notes**

Chord: 3 or more notes played together. Eg C Major (CEG) or A Minor (ACE)

Chord tones: The notes of a chord. Eg the chord tones of C Major are C, E and G.

Passing notes: Non chord tones used to move between chord tones

Block chord: Playing every note of a chord at the same time

Broken chord: Playing the notes of a chord seperately

ACCOMPANIMENT

We can accompany songs using **block chords** or **broken chords.**

RECOMMENDED LISTENING

Beyonce - Lemonade
Adele - 19
The Beatles - Revolver
Radiohead - OK Computer

PARTS OF A SONG

INTRO

Introduces us to musical material from the song - should be instantly recognisable

VERSE

Gives us the detail of the song. The music will be similar for each verse, but the lyrics will change

BRIDGE/ PRECHORUS

Comes after the verse and builds up excitement towards the chorus

CHORUS

The catchiest part of the song, gives us the **hook**

The lyrics are usually the same for each chorus.

MIDDLE 8

Introduces new musical ideas 3/4 of the way through a song.

Eg. a solo, a guest vocalist

OUTRO

The end of a song.

TYPICAL SONG STRUCTURE

INTRO | VERSE | BRIDGE | CHORUS | VERSE | BRIDGE | CHORUS | MIDDLE 8 | OUTRO

Health, Fitness and Well-Being

Lifestyle choices – the decisions we make about how we live and behave that impact on health.

Diet

Eating healthy	Eating unhealthy
1. Boosts energy levels 2. Reduces the risk of developing serious health conditions 3. Help lose weight	1. Leads to deficiencies 2. Increases weight and % body fat 3. Causes depression with poor body shape

Activity levels

Active lifestyle	Inactive lifestyle
1. Boosts self esteem 2. Reduces stress and anxiety 3. Improves fitness levels	1. Increases risk of disease 2. Decreases muscle mass, strength and energy levels

Work/rest/sleep balance

Good balance	Poor balance
1. Improves mood 2. Increases productivity at work 3. Contributes to quality of sleep	1. Increases the risk of depression 2. Leads to weight gain 3. Increased blood pressure

Well being – a combination of physical, emotional and social health.

Positives effects of training/exercise on:

Physical health

- Stronger bones (increased bone density)
- Lower cholesterol / reduced obesity
- Increase/development of components of fitness
- Increase life expectancy

Emotional health

- To increase self esteem/confidence – increased endorphins released
- Reduced risk of age-related diseases - dementia
- Relieve stress and tension
- Fun/enjoyment / reduced boredom

Social health

- To develop teamwork skill
- To meet new people/friends
- Develop communication skills
- Develop leadership skills

Negative effects of training on:

- Physical health – overexertion leading to heart failure / overuse injuries
- Emotional health – training can lead to injury and cause depression
- Social health – training long hours means less time spent with family.

Recreational drugs – these are taken for pleasure and are legal to those over a certain age.

Smoking

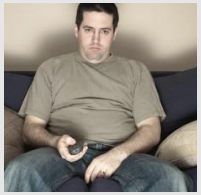
Causes breathlessness and reduces the oxygen-carrying capacity. This affect aerobic ability for endurance events. Smoking (nicotine) increases the risk of lung cancer, bronchitis, pneumonia & emphysema.

Alcohol - contains chemicals which act on the brain affect judgement.

Sedentary lifestyle – a lifestyle with no or irregular physical activity. This includes sitting, reading, watching television & playing video games.

Health risks associated are:

- Heart disease
- Type 2 diabetes
- Obesity
- Osteoporosis
- Depression



- **Explain what measures you can take to try to keep yourself healthy and fit - consider your current lifestyle (4 marks)**
- **Evaluate which of the negative impacts of health and well being is the most dangerous (6 marks)**

PE

RE

Faith and conflict

Key Terms

Orthodox, Reform and Liberal	The three largest denominations of Judaism
Bar Mitzvah	A Jewish ceremony that commemorates a boys passage into adulthood
Mazel-Tov	Congratulations in Hebrew
Yom Kippur	Day of atonement
Rosh Hashanah	.Jewish new year
Covenant	A deal between two parties such as the one Abraham made with God
Sacrifice	An offering of something valuable, in religious terms this is an offering to God.
Repentance	Saying sorry for something and showing regret
Tanakh	The Jewish holy books
Torah	The first five books of the bible (old testament) in Hebrew.
Talmud	The writing of Jewish law
Ashamnu	Jewish prayer of confession

Key Concepts

The Binding of Isaac: Abraham and his wife Sarah wanted nothing more than a child and eventually God granted them their wish. When Isaac reached his late teens God once again returned to Abraham to test him he asked him to sacrifice his son. Abraham showed his trust in God by agreeing to kill his son in God's name. God then spared Isaac and Abraham formed a covenant with God that would be the foundation of the Jewish faith.

The nature of God in Judaism: In Judaism they consider God to be a friend, someone they can talk to and rely on in times of need. They consider God to be omnipotent and invisible but nevertheless by their side constantly.

The reluctant prophet: Jonah never wanted to be a prophet. God kept giving him jobs he didn't want. Eventually God asked him to go to the town of Nineveh and tell them their destruction was imminent. Jonah refused and God had him swallowed by a giant fish. Jonah then regretted his actions and decided he would follow God's plan after all. The people of Nineveh heeded his warnings and changed their ways so they were eventually saved.

The Promised land: This refers to Israel and in particular Jerusalem , a place the Jews believe was promised to them by God. Unfortunately it was already occupied by the Muslim Palestinians and this has led to the conflicts in the middle east today.

Useful Quotations

"Now the word of the Lord came to Jonah the son of Amittai, saying, "Arise, go to Nineveh, that great city, and call out against it, for their evil has come up before me." Jonah 1:1

"Take your son, your only son Isaac, whom you love, and go to the land of Moriah, and offer him there as a burnt offering on one of the mountains of which I shall tell you." Genesis 22:1

"Leave your country, your people and your father's household and go to the land I will show you. I will make you into a great nation and I will bless you" Genesis 12:1

The Ten commandments

1. Thou shall have no Gods before me	3. Do not misuse God's name	5. Honour your father and your mother	7. Do not commit adultery	9. Do not lie or make false claims
2.Do not worship idols	4. Keep the Sabbath Holy	6. Do not kill	8. Do not steal	10 do not be jealous of others.

Faith and conflict

Key Terms

Holocaust	Literally meaning death by fire this marks a time in history when the Nazi's tried to destroy European Jewry as well as people from other minority groups such as Homosexuals, Travellers and Jehovah's witnesses
Kinder-transport	The transport that carried children out of Nazi occupied Europe to the UK
Nazi	The organisation and Governmental party led by Adolf Hitler
Concentration Camp	Camps designed for the eradication and murder of people on a large scale.
Auschwitz	The largest concentration camp, over a million people were murdered there.
Perpetrator	A person who actively commits a crime
bystander	Someone who watches and stands by without intervention
Collaborator	A person who enables others to perpetrate crimes
Rescuer	Someone who tried to actively help others.
Anti-Semitism	Prejudice against Jews based on perceived Racial inferiority

Key Concepts

Racial differences: The Nazi's persecuted the Jews as they saw them as an inferior race. They referred to Jews as a Semitic race that didn't have the same qualities as their Aryan race. They were seen as a dilution of German blood so mixing between Germans and Jews was not permitted

The Ghettos: Before being packed into trains and sent to concentration camps Jews were rounded up and forced to live in small confined apartments in walled parts of the cities where few people went in a even fewer people came out.

The Nuremberg laws: As soon as Hitler was voted into power he and his government started to introduce laws that would start to limit the Jewish way of life. The original laws seemed minor such as Jewish shops were not allowed to open on Fridays, Jews were not allowed pets and then they escalated the laws banning Jews from using forms of communication, banishing them from schools and closing all educational centres that accepted Jewish students.

Resistance: One of the most frequently asked questions is why didn't the Jews fight back. Many did. there were breakouts from camps and ghettos and many armed sieges but ultimately they were outgunned and outmanned by the Nazis so they looked at other forms of resistance including smuggling people, leaking information and cataloguing the heinous actions of individuals and the Nazis as a whole.

Testimony

"Escape was not our goal since it was so unrealistic. What we wanted was to survive , to live long enough to tell the world what had happened at Buchenwald (Slave labour camp)" Jack Werber Holocaust survivor who helped save the lives of 700 children who were being used for slave labour at Buchenwald

"to forget the Dead would be akin to killing them for a second time" Elie Wiesel, Holocaust survivor and Author

"even in this place one can survive, and therefore must want to survive, to tell the story, to bear witness; and that to survive we must force ourselves to save at least the skeleton, the scaffolding, the forms of civilization. We are slaves deprived of every right, exposed to every insult, condemned to certain death, but we still possess one power, and we must defend it with all our strength, for it is the last- the power to refuse consent" Primo Levi, Auschwitz survivor and author.

"First they Came" by Pastor Niemoller

First they came for the socialists, and I did not speak out as I was not a socialist. Then they came for the trade-unionists, and I did not speak out as I was not a trade-unionist. Then they came for the Jews, and I did not speak out as I was not a Jew. Then they came for me – and there was no one left to speak for me.

RE

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Energy stores and changes

AQA ENERGY – part 1

Energy pathways	
Mechanical	*Force acts upon an object*
Electrical	*Electric current flow*
Heat	*Temperature difference between objects*
Radiation	*Electromagnetic waves or sound*

Change in thermal energy = mass **X** specific heat capacity **X** temperature change

$\Delta E = m \mathbf{X} c \mathbf{X} \Delta\theta$

Specific Heat Capacity	*Energy needed to raise 1kg of substance by 1°C*	Depends on: mass of substance, what the substance is and energy put into the system.

HIGHER: efficiency can be increased using machines.

Efficiency = Useful power output / Total power input

Efficiency = Useful output energy transfer / Total input energy transfer

Efficiency	*How much energy is usefully transferred*

Kinetic energy	*Energy stored by a moving object*	½ X mass X (speed)^2 ½ mv^2
Elastic Potential energy	*Energy stored in a stretched spring, elastic band*	½ X spring constant X (extension)^2 ½ ke^2 (Assuming the limit of proportionality has not been exceeded)
Gravitational Potential energy	*Energy gained by an object raised above the ground*	Mass X gravitational field strength X height mgh

System	*An object or group of objects that interact together*	EG: Kettle boiling water.
Energy stores	*Kinetic, chemical, internal (thermal), gravitational potential, elastic potential, magnetic, electrostatic, nuclear*	Energy is gained or lost from the object or device.
Ways to transfer energy	*Light, sound, electricity, thermal, kinetic are ways to transfer from one store to another store of energy.*	EG: electrical energy transfers chemical energy into thermal energy to heat water up.
Unit	*Joules (J)*	

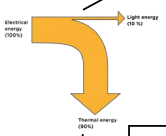
Work	*Doing work transfers energy from one store to another*	By applying a force to move an object the energy store is changed.	Work done = Force X distance moved W = Fs
Power	*The rate of energy transfer*	1 Joule of energy per second = 1 watt of power	Power = energy transfer ÷ time P = E ÷ t Power = work done ÷ time, P = W ÷ t

	Units
Specific Heat Capacity	*Joules per Kilogram degree Celsius (J/Kg°C)*
Temperature change	*Degrees Celsius (°C)*
Work done	*Joules (J)*
Force	*Newton (N)*
Distance moved	*Metre (m)*
Power	*Watts (W)*
Time	*Seconds (s)*

Useful energy	*Energy transferred and used*
Wasted energy	*Dissipated energy, stored less usefully*

Prefix	Multiple	Standard form
Kilo	*1000*	10^3
Mega	*1000 000*	10^6
Giga	*100 000 000*	10^9

Closed system	*No change in total energy in system*
Open system	*Energy can dissipate*



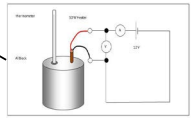
HIGHER: When an object is moved, energy is transferred by doing work.

Work done = Force X distance moved

Frictional forces cause energy to be transferred as thermal energy. This is wasted.

Reducing friction - using wheels, applying lubrication. Reducing air resistance – travelling slowly, streamlining.

Energy Conservation and Dissipation



Dissipate	*To scatter in all directions or to use wastefully*	When energy is 'wasted', it dissipates into the surroundings as internal (thermal) energy.

Ways to reduce 'wasted' energy	*Energy transferred usefully*	Insulation, streamline design, lubrication of moving parts.

Principle of conservation of energy	*The amount of energy always stays the same.*	Energy cannot be created or destroyed, only changed from one store to another.

	Units
Energy (KE, EPE, GPE, thermal)	*Joules (J)*
Velocity	*Metres per second (m/s)*
Spring constant	*Newton per metre (N/m)*
Extension	*Metres (m)*
Mass	*Kilogram (Kg)*
Gravitational field strength	*Newton per kilogram (N/Kg)*
Height	*Metres (m)*

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Using renewable energy will need to increase to meet demand.

Transport	*Petrol, diesel, kerosene produced from oil*	Used in cars, trains and planes.
Heating	*Gas and electricity*	Used in buildings.
Electricity	*Most generated by fossil fuels*	Used to power most devices.

Renewable energy makes up about 20% of energy consumption.

Fossil fuel reserves are running out.

Energy demand is increasing as population increases.

Power station – NB: You need to understand the principle behind generating electricity. An energy resource is burnt to make steam to drive a turbine which drives the generator.

Power station	*Generates electricity*	Fuel burnt releasing thermal energy →	Water boils into steam →	Steam turns turbine →	Turbine turns generator →	Generator induces voltage
National Grid	*Transports electricity across UK*	Power station →	Step-up transformer →	Pylons →	Step-down transformer →	House, factory

Non-renewable energy resource	*These will run out. It is a finite reserve. It cannot be replenished.*	e.g. Fossil fuels (coal, oil and gas) and nuclear fuels.
Renewable energy resource	*These will never run out. It is an infinite reserve. It can be replenished.*	e.g. Solar, Tides, Waves, Wind, Geothermal, Biomass, Hydroelectric

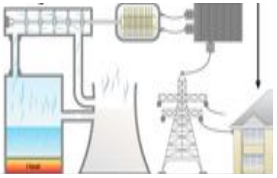
Using fuels

Energy resources

Global Energy Resources

AQA ENERGY – part 2

National Grid



Energy resource	*How it works*	Uses	Positive	Negative
Fossil Fuels (coal, oil and gas)	*Burnt to release thermal energy used to turn water into steam to turn turbines*	Generating electricity, heating and transport	Provides most of the UK energy. Large reserves. Cheap to extract. Used in transport, heating and making electricity. Easy to transport.	Non-renewable. Burning coal and oil releases sulfur dioxide. When mixed with rain makes acid rain. Acid rain damages building and kills plants. Burning fossil fuels releases carbon dioxide which contributes to global warming. Serious environmental damage if oil spilt.
Nuclear	*Nuclear fission process*	Generating electricity	No greenhouse gases produced. Lots of energy produced from small amounts of fuel.	Non-renewable. Dangers of radioactive materials being released into air or water. Nuclear sites need high levels of security. Start up costs and decommission costs very expensive. Toxic waste needs careful storing.
Biofuel	*Plant matter burnt to release thermal energy*	Transport and generating electricity	Renewable. As plants grow, they remove carbon dioxide. They are 'carbon neutral'.	Large areas of land needed to grow fuel crops. Habitats destroyed and food not grown. Emits carbon dioxide when burnt thus adding to greenhouse gases and global warming.
Tides	*Every day tides rise and fall, so generation of electricity can be predicted*	Generating electricity	Renewable. Predictable due to consistency of tides. No greenhouse gases produced.	Expensive to set up. A dam like structure is built across an estuary, altering habitats and causing problems for ships and boats.
Waves	*Up and down motion turns turbines*	Generating electricity	Renewable. No waste products.	Can be unreliable depends on wave output as large waves can stop the pistons working.
Hydroelectric	*Falling water spins a turbine*	Generating electricity	Renewable. No waste products.	Habitats destroyed when dam is built.
Wind	*Movement causes turbine to spin which turns a generator*	Generating electricity	Renewable. No waste products.	Unreliable – wind varies. Visual and noise pollution. Dangerous to migrating birds.
Solar	*Directly heats objects in solar panels or sunlight captured in photovoltaic cells*	Generating electricity and some heating	Renewable. No waste products.	Making and installing solar panels expensive. Unreliable due to light intensity.
Geothermal	*Hot rocks under the ground heats water to produce steam to turn turbine*	Generating electricity and heating	Renewable. Clean. No greenhouse gases produced.	Limited to a small number of countries. Geothermal power stations can cause earthquake tremors.

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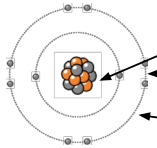
AQA GCSE Atomic structure and periodic table part 1

Atoms, elements and compounds

Atom	*The smallest part of an element that can exist*	Have a radius of around 0.1 nanometres and have no charge (0).
Element	*Contains only one type of atom*	Around 100 different elements each one is represented by a symbol e.g. O, Na, Br.
Compound	*Two or more elements chemically combined*	Compounds can only be separated into elements by chemical reactions.



Central nucleus	Contains protons and neutrons
Electron shells	Contains electrons

Name of Particle	Relative Charge	Relative Mass
Proton	+1	1
Neutron	0	1
Electron	-1	Very small

Electronic structures

Electronic shell	Max number of electrons
1	2
2	8
3	8
4	2

Relative electrical charges of subatomic particles

7
Li
3

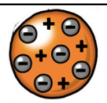
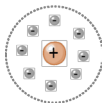
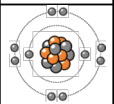
Mass number	*The sum of the protons and neutrons in the nucleus*	
Atomic number	*The number of protons in the atom*	Number of electrons = number of protons

Mixtures

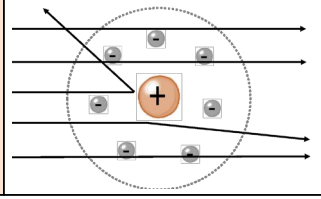
Mixtures	*Two or more elements or compounds not chemically combined together*	Can be separated by physical processes.

Method	Description	Example
Filtration	*Separating an insoluble solid from a liquid*	To get sand from a mixture of sand, salt and water.
Crystallisation	*To separate a solid from a solution*	To obtain pure crystals of sodium chloride from salt water.
Simple distillation	*To separate a solvent from a solution*	To get pure water from salt water.
Fractional distillation	*Separating a mixture of liquids each with different boiling points*	To separate the different compounds in crude oil.
Chromatography	*Separating substances that move at different rates through a medium*	To separate out the dyes in food colouring.

The development of the model of the atom

Pre 1900		*Tiny solid spheres that could not be divided*	Before the discovery of the electron, John Dalton said the solid sphere made up the different elements.
1897 'plum pudding'		*A ball of positive charge with negative electrons embedded in it*	JJ Thompson 's experiments showed that showed that an atom must contain small negative charges (discovery of electrons).
1909 nuclear model		*Positively charge nucleus at the centre surrounded negative electrons*	Ernest Rutherford's alpha particle scattering experiment showed that the mass was concentrated at the centre of the atom.
1913 Bohr model		*Electrons orbit the nucleus at specific distances*	Niels Bohr proposed that electrons orbited in fixed shells; this was supported by experimental observations.

James Chadwick	*Provided the evidence to show the existence of neutrons within the nucleus*

Rutherford's scattering experiment		*A beam of alpha particles are directed at a very thin gold foil*	Most of the alpha particles passed right through. A few (+) alpha particles were deflected by the positive nucleus. A tiny number of particles reflected back from the nucleus.

Chemical equations	*Show chemical reactions - need reactant(s) and product(s) energy always involves and energy change*	Law of conservation of mass states the total mass of products = the total mass of reactants.

Word equations	*Uses words to show reaction* **reactants □ products** magnesium + oxygen □ magnesium oxide	Does not show what is happening to the atoms or the number of atoms.
Symbol equations	*Uses symbols to show reaction* **reactants □ products** $2Mg + O_2$ □ $2MgO$	Shows the number of atoms and molecules in the reaction, these need to be balanced.

Relative atomic mass

Isotopes	*Atoms of the same element with the same number of protons and different numbers of neutrons*	^{35}Cl (75%) and ^{37}Cl (25%) Relative abundance = (% isotope 1 x mass isotope 1) + (% isotope 2 x mass isotope 2) ÷ 100 **e.g. (25 x 37) + (75x 35) ÷ 100 = 35.5**

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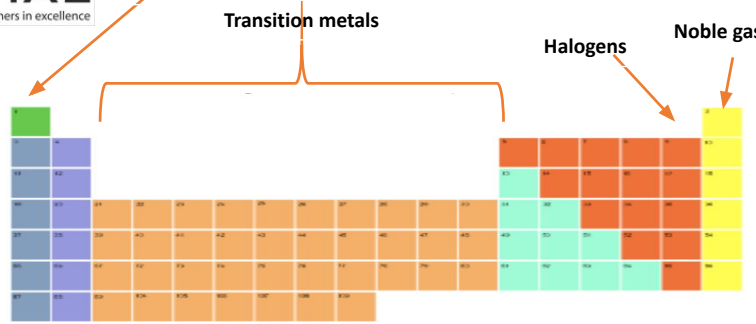
AQA GCSE Atomic structure and periodic table part 2



The Periodic table

Elements arranged in order of atomic number	*Elements with similar properties are in columns called groups*	Elements in the same group have the same number of outer shell electrons and elements in the same period (row) have the same number of electron shells.

Development of the Periodic table

Before discovery of protons, neutrons and electrons	*Elements arranged in order of atomic weight*	Early periodic tables were incomplete, some elements were placed in inappropriate groups if the strict order atomic weights was followed.
Mendeleev	*Left gaps for elements that hadn't been discovered yet*	Elements with properties predicted by Mendeleev were discovered and filled in the gaps. Knowledge of isotopes explained why order based on atomic weights was not always correct.

Metals and non metals

Metals	*To the left of the Periodic table*	Form positive ions. Conductors, high melting and boiling points, ductile, malleable.
Non metals	*To the right of the Periodic table*	Form negative ions. Insulators, low melting and boiling points.

Group 1

Alkali metals	*Very reactive with oxygen, water and chlorine*	Only have one electron in their outer shell. Form +1 ions.
	Reactivity increases down the group	Negative outer electron is further away from the positive nucleus so is more easily lost.

With oxygen	Forms a metal oxide	Metal + oxygen → metal oxide	e.g. $4Na + O_2 \rightarrow 2Na_2O$
With water	Forms a metal hydroxide and hydrogen	Metal + water → metal hydroxide + hydrogen	e.g. $2Na + 2H_2O \rightarrow 2NaOH + H_2$
With chlorine	Forms a metal chloride	Metal + chlorine → metal chloride	e.g. $2Na + Cl_2 \rightarrow 2NaCl$

Group 7

Halogens	*Consist of molecules made of a pair of atoms*	Have seven electrons in their outer shell. Form -1 ions.
	Melting and boiling points increase down the group (gas → liquid → solid)	Increasing atomic mass number.
	Reactivity decreases down the group	Increasing proton number means an electron is more easily gained

With metals	Forms a metal halide	Metal + halogen → metal halide e.g. Sodium + chlorine → sodium chloride	e.g. NaCl metal atom loses outer shell electrons and halogen gains an outer shell electron
With hydrogen	Forms a hydrogen halide	Hydrogen + halogen → hydrogen halide e.g. Hydrogen + bromine → hydrogen bromide	e.g. $Cl_2 + H_2 \rightarrow 2HCl$
With aqueous solution of a halide salt	A more reactive halogen will displace the less reactive halogen from the salt	Chlorine + potassium bromide → potassium chloride + bromine	e.g. $Cl_2 + 2KBr \rightarrow 2KCl + Br_2$

Group 0

Noble gases	*Unreactive, do not form molecules*	This is due to having full outer shells of electrons.
	Boiling points increase down the group	Increasing atomic number.

Transition metals (Chemistry only)

Compared to group 1	• *Less reactive* • *Harder* • *Denser* • *Higher melting points*	• *Cu^{2+} is blue* • *Ni^{2+} is pale green, used in the manufacture of margarine* • *Fe^{2+} is green, used in the Haber process* • *Fe^{3+} is reddish-brown* • *Mn^{2+} is pale pink*
Typical properties	• *Many have different ion possibilities with different charges* • *Used as catalysts* • *Form coloured compounds*	

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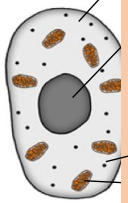
AQA Cell Structure

Eukaryotes complex organisms

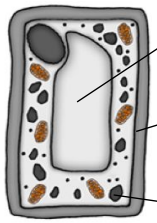
animal cell

plant cell



cytoplasm	*site of chemical reactions in the cell*	gel like substance containing enzymes to catalyse the reactions
nucleus	*contains **genetic material***	controls the activities of the cell and codes for proteins
cell membrane	*semi permeable*	controls the movement of substances in and out of the cell
ribosome	*site of protein synthesis*	mRNA is translated to an amino acid chain
mitochondrion	*site of respiration*	where energy is released for the c to function

contains all the parts of animal cells plus extras



permanent vacuole	*contains cell sap*	keeps cell turgid, contains sugars and salts in solution
cell wall	*made of cellulose*	supports and strengthens the cell
chloroplast	*site of photosynthesis*	contains chlorophyll, absorbs light energy

how a cell changes and becomes **specialised**
Undifferentiated call are called **STEM** cells

animal cell differentiation

early stages of development only for repair and replacement

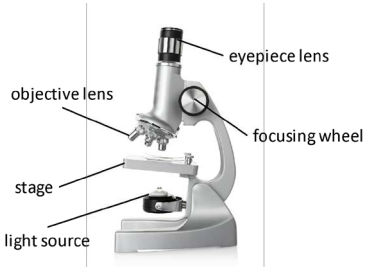
plant cell differentiation

all stages of life cycle the stem cells are grouped together in meristems

Cell differentiation

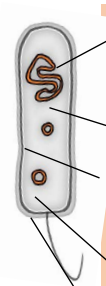
Microscopy

magnification M = size of image I / real size of the object A



Feature	Light (optical) microscope	Electron microscope
Radiation used	Light rays	Electron beams
Max magnification	~ 1500 times	~ 2 000 000 times
Resolution	200nm	0.2nm
Size of microscope	Small and portable	Very large and not portable
Cost	~£100 for a school one	Several £100,000 to £1 million plus

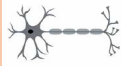
Prokaryotes simpler organisms



cell membrane	*site of chemical reactions in the cell*	gel like substance containing enzymes to catalyse the reactions
bacterial DNA	*not in nucleus floats in the cytoplasm*	controls the function of the cell
cell wall	***NOT** made of cellulose*	supports and strengthens the cell
plasmid	*small rings of DNA*	contain additional genes
cytoplasm	*semi permeable*	controls the movement of substances in and out of the cell

Specialised cells

specialised animal cells



nerve	*carry electrical signals*	long branched connections and insulating sheath

sperm	*fertilise an egg*	streamlined with a long tail acrosome containing enzymes large number of mitochondria

muscle	*contract to allow movement*	contains a large number of mitochondria long

specialised plant cells

root hair	*absorb water and minerals from soil*	hair like projections to increase the surface area

xylem	*carry water and minerals*	TRANSPIRATION - dead cells cell walls toughened by lignin flows in one direction

phloem	*carry glucose*	TRANSLOCATION - living cells cells have end plates with holes flows in both directions

PREFIXES

Prefix	Multiple	Standard form
centi (cm)	1 cm = 0.01 m	x 10^{-2}
milli (mm)	1 mm = 0.001 m	x 10^{-3}
micro (µm)	1 µm = 0.000 001 m	x 10^{-6}
nano (nm)	1nm = 0.000 000 001 m	x 10^{-9}

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largest → smallest

cell	The smallest structural and functional unit of an organism.
nucleus	A structure that contains genetic material and controls the activities of the cell.
chromosome	A thread like structure of coiled DNA found in the nucleus of eukaryotic cells.
DNA	A polymer made up of two strands forming a double helix.
gene	A section of DNA that codes for a specific protein or characteristic.

AQA Cell Biology 2

Cell division

Cells divide in a series of stages. The genetic material is doubled and then divided into two identical cells.

MITOSIS AND THE CELL CYCLE

Stage 1	***Growth***	Increase the number of subcellular structures e.g. ribosomes and mitochondria.
Stage 2	***DNA Synthesis***	DNA replicates to form two copies of each chromosome.
Stage 3	***Mitosis***	One set of chromosomes is pulled to each end of the cell and the nucleus divides. Then the cytoplasm and cell membranes divide to form two cells that are identical to the parent cell.

Mitosis occurs during growth, repair, replacement of cells. Asexual reproduction occurs by mitosis in both plants & simple animals.

STEM CELLS

Undifferentiated cell of an organism

Divides to form more cells of the same type, and can differentiate to form many other cell types.

Human Embryonic stem cells	***Can be cloned and made to differentiate into most cell types***	Therapeutic cloning uses same genes so the body does not reject the tissue. Can be a risk of infection
Adult bone marrow stem cells	***Can form many types of human cells e.g. blood cells***	Tissue is matched to avoid rejection, risk of infection. Only a few types of cells can be formed.
Meristems (plants)	***Can differentiate into any plant cell type throughout the life of the pant.***	Used to produce clones quickly and economically, e.g. rare species, crop plants with pest /disease resistance

Transport in cells

Diffusion ***No*** energy required	***Movement of particles in a solution or gas from a higher to a lower concentration***	E.g. O_2 and CO_2 in gas exchange, urea in kidneys. Factors that affect the rate are concentration, temperature and surface area.
Osmosis ***No*** energy required	***Movement of water from a dilute solution to a more concentrated solution***	E.g. Plants absorb water from the soil by osmosis through their root hair cells. Plants use water for several vital processes including photosynthesis and transporting minerals.
Active transport ***ENERGY*** required	***Movement of particles from a dilute solution to a more concentrated solution***	E.g. movement of mineral ions into roots of plants and the movement of glucose into the small intestines.

ADAPTATIONS FOR DIFFUSION

The greater the difference in concentrations the faster the rate of diffusion.

Small intestines	***Villi – increase surface area, Good blood supply – to maintain concentration gradient, Thin membranes – short diffusion distance.***
Lungs	***Alveoli– increase surface area, Good blood supply – to maintain concentration gradient, Thin membranes – short diffusion distance.***
Gills in fish	***Gill filaments and lamella – increase surface area, Good blood supply – to maintain concentration gradient, Thin membranes – short diffusion distance.***
Roots	***Root hair cells - increase surface area.***
Leaves	***Large surface area, thin leaves for short diffusion path, stomata on the lower surface to let O_2 and CO_2 in and out.***

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SPANISH

Technology, free time & healthy lifestyle (Foundation) - THEME 1

1. ¿Usas mucho el internet? (Do you use the internet much?) Quizlet list

Siempre (Always) **Todos los días** (Every day) **De vez en cuando** (From time to time) **A veces** (Sometimes)	**uso (Twitter/ Facebook/…)** (I use (Twitter/ Facebook/…) **veo videos en TikTok** (I watch videos on TikTok) **subo fotos a mi cuenta de Instagram** (I upload photos to my Instagram account) **descargo música** (I download music) **hago la compra por Internet** (I do online shopping)	**pero nunca** (but I never) **pero ya no** (but I no longer)	**Mando mensajes** (I send messages) **Miro las redes sociales** (I check social media) **Descargo aplicaciones** (I download apps) **escucho música** (I listen music) **hago los deberes** (I do homework)	**porque es una pérdida de tiempo** (because it's a waste of time) **porque gasta mucha batería** (because it wastes a lot of battery) **porque está pasado de moda** (because it's old fashioned) **¡porque mi (padre) no me lo permite!** (because my (dad) doesn't let me!) **porque mi (madre) piensa que pasamos demasiado tiempo en Internet** (because my (mum) thinks that we spend too much time on the internet)
3rd person (DPR8): **En mi casa, casi nadie** (In my house, almost nobody) **Mi madre ya no** (My mum no longer)	**ve videos en TikTok / sube fotos a su cuenta de Instagram** (watches videos on TikTok) / (uploads photos to their Instagram account) **usa Twitter / descarga música** (uses Twitter) / (downloads music) **hace la compra por Internet / escucha música** (does online shopping) / (listens to music)			

Top band language

-**Si fuera posible, me gustaría usar…** *If it were possible, I would like to use more…*

-**Porque puede causar problemas de acoso** *because it can cause bullying problems*

-**mi hermano y yo descargamos aplicaciones/ mandamos mensajes** *my brother and I download app / send messages*

2. ¿Qué piensas de las redes sociales? (What do you think of social media?) Quizlet list

Pienso que / Opino que (I think that) **Mi (madre/padre/abuela/abuelo) piensa que** (My (mum/dad/grandma/grandpa) thinks that) **Diría que** (I would say that) **Desde mi punto de vista** (From my point of view)	**las redes sociales son** (social media is) **las redes sociales, por ejemplo (TikTok), son** (social media, for example (TikTok), is)	**útiles** (useful) **divertidas** (fun) **peligrosas** (dangerous) **Entretenidas** (entertaining) **una pérdida de tiempo** (a waste of time)
	las redes sociales (social media) **las redes sociales, por ejemplo (Facebook)** (social media, for example (Facebook),)	**Están de moda** (are on trend/ in fashion) **Están pasadas de moda** (are outdated/ out of fashion) **me permiten ver vídeos graciosos** (they allow me to watch funny videos) **Me permiten descubrir música** (they allow me to discover new music) **me dan la oportunidad de ver fotos de mi familia** (they give me the opportunity to watch pictures of my family)

Top band language

-**Las redes sociales pueden ser muy estresantes** *social media can be very stressful*

-**Hace cinco años tenía una opinión diferente sobre las redes sociales** *five years ago I had a different opinion about social media*

Technology, free time & healthy lifestyle (Foundation) - THEME 1

3. ¿Qué haces en tu tiempo libre? (What do you do in your free time?)/ **¿Qué te gusta comer?** (What do you like to eat?) Quizlet list

En mi tiempo libre (In my free time) **Los fines de semana** (On the weekends) **Cuando tengo tiempo** (When I have time)	**suelo** (I usually) **mis amigos y yo solemos** (my friends and I usually) **Mi amigo suele** (my friend usually)	**bailar en clases de zumba** *(dance in zumba classes)* **jugar al fútbol/al baloncesto** *(play football/basketball)* **cantar en un coro** *(sing in a choir)* **leer novelas** *(read novels)* **hacer deportes acuáticos** *(do water sports)* **ir al cine** *(go to the cinema)* **pintar** *(to paint)* / **nadar** *(swim)* **ayudar con las tareas domésticas** (help with the housework) **pasear al perro** (to walk the dog)	**porque** **dado que** **ya que** **visto que** **puesto que** *(because)* **y opino que** *(and I think that)*	**me permite relajarme** *it allows me to relax* **me permite olvidarme de todo** *it allows me to forget everything* **me quita el estrés** *it takes away my stress* **me hace reír / llorar** *it makes me laugh / cry* **me da la oportunidad de pasar tiempo con mis amigos/mi familia** *It gives me the chance to spend time with my friends/my family)* **me da la oportunidad de mantenerme en forma** *it gives me the opportunity to keep fit*
Sin embargo en el futuro… *(However, in the future)*	**me gustaría…** *I'd like…*			
Personalmente me gusta *(Personally, I like)*	**la comida italiana** *(Italian food)* **La comida nigeriana** *(Nigerian food)* **La comida española** *(Spanish food)* **La comida india** *(Indian food)* **La comida china** *(Chinese food)* **La comida tailandesa** *(Thai food)*	**ya que creo que es** (*because I think it is*)	**deliciosa** (*delicious*) **sabrosa** (*tasty*) **picante** (*spicy*) **salada** (*salty*) **fresca** (*fresh*)	**Top band language:** **-Prefiero la comida italiana pero mi mejor amigo prefiere la comida mexicana** *(I prefer Italian food but my best friend prefers Mexican food)* **-La semana pasada comí…** *(Last week I ate…)* **-En el futuro me gustaría probar…** *(In the future, I would like to try…)*
A mi hermano le gusta *(My brother likes)*		**puesto que piensa que es** (*because he /she thinks that it is*)		

4. ¿Qué deporte harás para mantenerte en forma en el futuro? (What sport will you do to keep fit in the future?) Quizlet list

Para mantenerme en forma (*To keep fit*) **Para mejorar mi salud** (*To improve my health*) **Por la mañana** (*In the morning*) **Por la tarde** (*In the afternoon*)	**el lunes** *(on Monday)* **el martes** *(on Tuesday)* **el miércoles** *(on Wednesday)* **el jueves** *(on Thursday)* **el viernes** *(on Friday)* **el sábado** *(on Saturday)* **el domingo** *(on Sunday)*	**jugaré al…** (*I will play*)	**tenis** (*tennis*), **fútbol** (*Football*), **baloncesto** (*basketball*) , **golf, voleibol, bádminton, ping pong, béisbol**	**ya que me permite pasar tiempo con mis amigos** (*because it allows me to spend time with my friends*) **ya que me da la oportunidad de relajarme** (*because it gives me the opportunity to relax*) **puesto que me ayuda a mantenerme en forma** (*because it helps me to keep in shape*)
		haré… (*I will do*)	**vela** (*sailing*), **alpinismo** (*hiking*), **natación** (*swimming*), **equitación** (*horse riding*), **atletismo** (*athletics*), **esquí** (*ski*), **ciclismo** (*cycling*), **patinaje** (*skating*), **pesca** (*fishing*), **piragüismo** (*canoeing*), **gimnasia rítmica** (*gymnastics*), **boxeo** (*boxing*)	
		iré (*I will go*)	**al gimnasio** *(to the gym)*/ **a la piscina** *(to the swimming pool)*	

Top band language:
Si tuviera la oportunidad, me gustaría practicar… *(If I had the opportunity, I would like to practice)*
A mi hermana Eva le encantaría practicar… (*My sister Eva would love to practice…***) porque le permite descansar/ mejorar su salud** *(because it allows her/him to rest/ improve his/her health)*

SPANISH

SPANISH

Technology, free time & healthy lifestyle (Higher) - THEME 1

1.¿Usas mucho el internet? (Do you use the internet much?) Quizlet list

Siempre (Always) **Todos los días** (Every day) **De vez en cuando** (From time to time) **A veces** (Sometimes)	**uso** (I use)	**TikTok para aprender bailes nuevos.** (TikTok to learn new dances) **Youtube para ver vídeos graciosos.** (Youtube to watch funny videos) **Spotify para descubrir música.** (Spotify to discover music) **Facebook para ver fotos de mi familia.** (Facebook to see pictures of my family) **Snapchat para subir fotos.** (Snapchat to upload pictures)	**Aunque** (Although) **Sin embargo** (However)	**cuando era joven usaba…** When I was young, I used to use **cuando era joven, me gustaba usar…** When I was young, I liked using… **Hace cinco años solía usar…** Five years ago, I used to use…	**TikTok para aprender bailes nuevos** (TikTok to learn new dances) **Youtube para ver vídeos graciosos** (Youtube to watch funny videos) **Spotify para descubrir música** (Spotify to discover music) **Facebook para ver fotos de mi familia** (Facebook to see pictures of my family) **Snapchat para subir fotos** (Snapchat to upload pictures)
Cuando no estoy estudiando (When I am not studying)	**veo videos en TikTok.** (I watch videos on TikTok) **descargo música.** (I download music) **subo fotos a mi cuenta de Instagram.** (I upload photos to my Instagram account) **hago la compra por Internet.** (I do online shopping) **mando fotos a mis amigos en Snapchat.** (I send photos to my friends on Snapchat)			**Top band language** **-Si fuera posible, me gustaría usar…** If it were possible, I would like to use more… **-Porque puede causar problemas de acoso** because it can cause bullying problems **-Me habría gustado usar** I would have liked to use	

2. ¿Qué opinas de las redes sociales? (*What do you think about social media?*) Quizlet link

		3rd person:		Top band language:
Pienso que las redes sociales son (I think that social media is) **Mi (madre/padre/abuela/abuelo) piensa que las redes sociales son** (My (mum/dad/grandma/grandpa) thinks that social media is) **Diría que las redes sociales, por ejemplo (TikTok), son** (I would say that social media, for example (TikTok) is)	**útiles** (useful) **divertidas** (fun) **peligrosas** (dangerous) **una pérdida de tiempo** (a waste of time) **entretenidas** (entertaining) **repetitivas** (repetitive) **aburridas** (boring) **estresantes** (stressful) **adictivas** (addictive)	**En mi casa, casi nadie** (In my house, almost nobody) **Mi madre ya no** (My mum no longer)	**usa Twitter** (uses Twitter) **ve videos en TikTok** (watches videos on TikTok) **sube fotos a su cuenta de Instagram** (uploads photos to their Instagram account) **descarga música** (downloads music) **hace la compra por Internet** (does online shopping)	**pero es una pérdida de tiempo.** (but it's a waste of time) **porque no gasta mucha batería.** (because it doesn't waste a lot of battery) **porque está pasado de moda.** (because it's old fashioned) **Mi padre no me permite usar (TikTok) todos los días** (My dad doesn't let me use TikTok every day) **Mi (madre) piensa que pasamos demasiado tiempo en Internet.** (My (mum) thinks that we spend too much time on the internet) **Me permiten ver cuál es la tendencia del momento** (They allow me to see what's trending at the moment) **Me permiten ver las noticias de la última hora** (They allow me to see the latest news) **Me da la oportunidad de conocer gente nueva** (It gives me the opportunity to meet new people)

SPANISH

Technology, free time & healthy lifestyle (Higher) - THEME 1

3. ¿Qué haces en tu tiempo libre? (What do you do in your free time?)/ **¿Qué te gusta comer?** (What do you like to eat?) Quizlet link

En mi tiempo libre (In my free time) **Los fines de semana** (On the weekends) **Cuando tengo tiempo** (When I have time)	**suelo** (I usually) **me mola / me flipa** (I really like) **mis amigos y yo solemos** (my friends and I usually) **Mi amigo suele** (my friend usually)	**bailar en clases de zumba** (dance in zumba classes) **jugar al fútbol/al baloncesto** (play football/basketball) **cantar en un coro** (sing in a choir) **leer novelas** (read novels) **hacer deportes acuáticos** (do water sports) **ir al cine** (go to the cinema) **nadar en la piscina local** (swim in the local swimming pool) **ayudar con las tareas domésticas** (help with the housework) **pasear al perro** (to walk the dog)	**porque** **dado que** **ya que** **visto que** **puesto que** *(because)* **y opino que** *(and I think that)*	**me permite relajarme** *it allows me to relax* / **le permite relajarse** *it allows him/her to relax* **me permite olvidarme de todo** *it allows me to forget everything* **le permite olvidarse de todo** *it allows him/her to forget everything* **me quita el estrés** *it takes away my stress* /**le quita el estrés** *it takes his/her stress way* **me hace reír / llorar** *it makes me laugh / cry* / **le hace reír/llorar** *it makes him/her laugh/cry* **me da la oportunidad de pasar tiempo con mis amigos/mi familia** *(It gives me the chance to spend time with my friends/my family)* **me da la oportunidad de mantenerme en forma** *(it gives me the opportunity to keep fit)*
Sin embargo en el futuro… *(However, in the future)*	**me gustaría…** *I'd like…* **Me encantaría…** *I'd love…*			
Desde mi punto de vista, me encanta *(from my point of view, I love…)*	**la comida italiana** *(Italian food)* **La comida nigeriana** *(Nigerian food)* **La comida española** *(Spanish food)* **La comida india** *(Indian food)* **La comida china** *(Chinese food)* **La comida tailandesa** *(Thai food)*	**ya que creo que es** (*because I think it is*) **porque en mi opinión es** (*because in my opinion it is*)	**deliciosa** (*delicious*) **sabrosa** (*tasty*) **picante** (*spicy*) **salada** (*salty*) **fresca** (*fresh*)	**Top band language:** **-Prefiero la comida italiana pero mi mejor amigo prefiere la comida mexicana** *(I prefer Italian food but my best friend prefers Mexican food)* **-La semana pasada comí…** *(Last week I ate…)* **-En el futuro me gustaría probar…** *(In the future, I would like to try…)*
A mi hermano le gusta *(My brother likes)*		**puesto que piensa que es** (*because he /she thinks that it is*)		

4. ¿Qué deporte harás para mantenerte en forma en el futuro? (What sport will you do to keep fit in the future?) Quizlet list

Para mantenerme en forma (*To keep fit*) **Porque me preocupa mi salud** (*Because I worry about my health*) **Para mejorar mi salud** (*To improve my health*) **Por la mañana** (*In the morning*) **Por la tarde** (*In the afternoon*)	**el lunes** *(on Monday)* **el martes** *(on Tuesday)* **el miércoles** *(on Wednesday)* **el jueves** *(on Thursday)* **el viernes** *(on Friday)* **el sábado** *(on Saturday)* **el domingo** *(on Sunday)*	**jugaré al…** (*I will play*) **probaré el…** (*I will try*)	**tenis** (*tennis*), **fútbol** (*Football*), **baloncesto** (*basketball*) , **golf, voleibol, bádminton, ping pong, béisbol**	**ya que me permite pasar tiempo con mis amigos** (*because it allows me to spend time with my friends*) **ya que me da la oportunidad de relajarme** (*because it gives me the opportunity to relax*) **puesto que me ayuda a mantenerme en forma** (*because it helps me to keep in shape*) **ya que me permite aprender nuevas habilidades** (*because it allows me to learn new skills*) **ya que tiene ventajas para mi salud** (*because it allow has advantages for my health*)
		haré… (*I will do*) **probaré (el/la)…** (*I will try*)	**vela** (*sailing*), **alpinismo** (*hiking*), **natación** (*swimming*), **equitación** (*horse riding*), **atletismo** (*athletics*), **esquí** (*ski*), **ciclismo** (*cycling*), **patinaje** (*skating*), **pesca** (*fishing*), **piragüismo** (*canoeing*), **gimnasia rítmica** (*gymnastics*), **boxeo** (*boxing*)	
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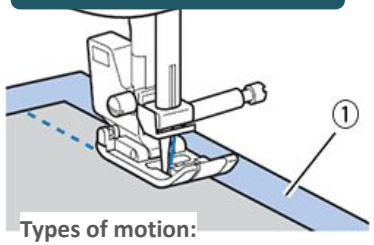
TEXTILES

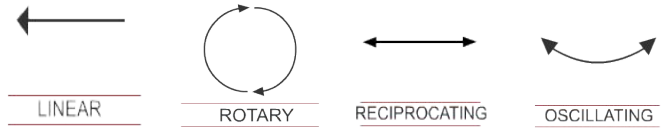
Year 9 Textiles

Mechanisms in Textiles



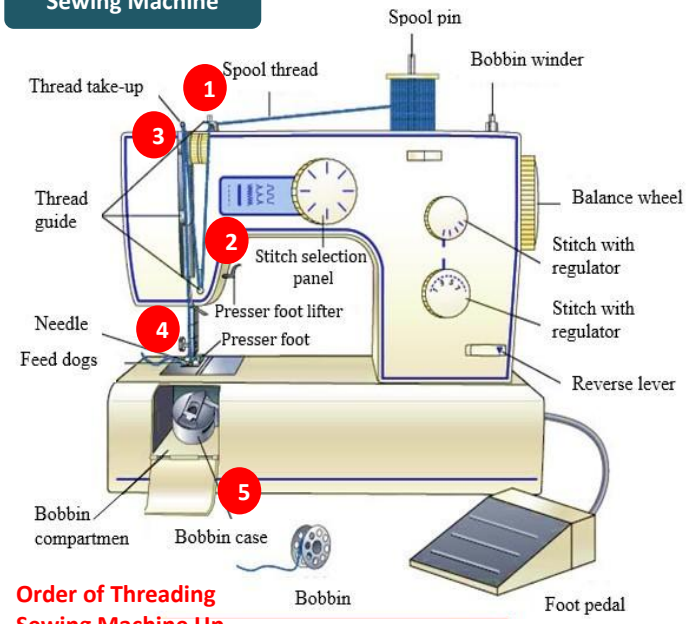
The sewing machine is a complicated piece of equipment that has multiple **mechanisms** working together in a **mechanical system** to convert **motion** and control **forces.** Eg as the foot pedal is pressed this causes needle to move up and down and the feed dogs pull the fabric through, therefore creating a secure stitch

Types of motion:



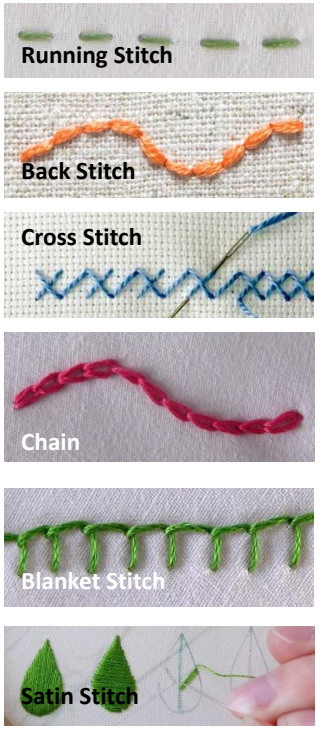
LINEAR	ROTARY	RECIPROCATING	OSCILLATING
Motion going in one straight direction	Circular motion around a fixed axis/pivot point	Continuous motion backwards/forwards OR up/down	Continuous motion across an arc/curve

Sewing Machine



Order of Threading Sewing Machine Up

Embroidery Stitches



Embroidery is the craft of decorating fabric using a needle to apply **thread**. Embroidery stitches can also be used to hold applique in place.

CAD/CAM in Textiles

CAD = **C**omputer **A**ided **D**esign
CAM = **C**omputer **A**ided **M**anufacture

CAD (2d Design) can be used to create a design or part of your design which can be sent to a machine (**CAM** - laser cutter or CNC embroidery machine) which helps to make the design.

Advantages:
- Quicker
- Changes can be easily made
- More/repeat numbers can be made
- Cheaper as a result of being quicker to make
-Easily customised
- Can be shared internationally via email
- Increased accuracy

Disadvantages:
- Requires training to be confident in software
- Machines/Software can be initially very expensive
- Specialists are needed if machines breakdown
- High use of energy
- Could replace skilled workers with machines

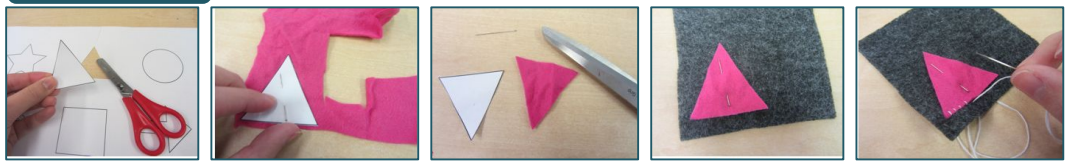
Tie-Dye

Tie-dye is a resist dyeing technique. It is called this because the tying and manipulating of the fabric (twisting, folding, scrunching) stops (resists) the dye from being absorbed.

Block Printing

Block printing is a relief printing technique that uses a carved material (typically wood, linoleum, or rubber) to transfer ink onto fabric or paper.

Applique



1. Cut your pattern piece using paper & scissors
2. Use a pin to attach your pattern to the fabric.
3. Cut around your pattern and once complete, remove your pin
4. Use a pin to attach to your larger piece of fabric
5. Stitch around the edge to secure in place

Classification of Fibres

A **fibre** is fine like hair in structure. Fibres that are **twisted** together are called **thread/yarn. Fabric** is **cloth** that is **made from fibres or yarn**. Depending on where they come from and how they are made, gives the fabric different characteristics and therefore suits different functions. Fibres are split into two categories:

Natural Fibres

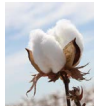
Spinnable substances existing in **nature**

Animal

Silk
Wool

Plant

Cotton - Cotton Plant
Calico - Cotton Plant
Linen - Flax Plant
Hessian - Jute Plant



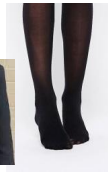
Manufactured Fibres

Spinnable substances manufactured by **man**

Synthetic

Synthetic fibres are made from processed chemicals

Polyester
Nylon
Lycra



Regenerated

Regenerated fibers are produced from polymers (fibres) occurring in nature (e.g., viscose, rayon from the cellulose in wood pulp)

Rayon
Viscose

*Felt can be made using Synthetic fibres such as acrylic or Natural fibres such as animal fur
** Leather is not a fabric as it is not made up of fibres or yarns - it is a skin of an animal

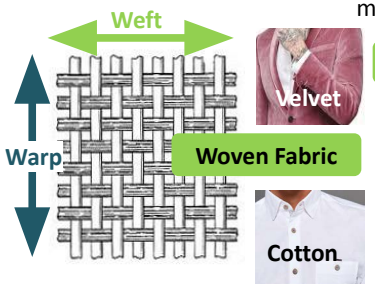
Properties and characteristics of fibres and fabrics.

Fabrics and fibres have different characteristics (soft, smooth, fluffy, shiny) and properties - **what the fabric can do/how it can behave.** For instance **wool** is heat insulating and has some elasticity (property) but it is soft to feel (characteristics).

Absorbency: A material that soaks up liquid or moisture
Water-Repellent: A material that is completely resistant to water as a result of being hydrophobic
Strength: The behaviour of materials when forces are applied to them (pulled, tension, stress)
Durability: Long lasting and hard wearing
Anti-static: A material that does not build-up of static electricity
Insulation: Prevention or reduction of heat loss
Elasticity: How much a material can stretch and then return to its original position
Resistance to: How well a material can stop or prevent reacting to something - eg. bleach, sunlight, chemicals, creasing
Flammability: The ability to ignite and burns rapidly with a flame

Construction of Fabric

Fabrics are made from yarns, which are held together by **weaving** or **knitting**. Fabrics can also be made from **bonded fibres.**



Woven fabrics are made interlacing two sets of yarn, the warp and weft

Different coloured yarns can be woven together to create a pattern. Woven fabric is more structured and will hold its shape, that is is why it is often used for shirts, blazers/suits and trousers.

Knitted fabrics are made by interlocking one or more yarns together using loops

As a result of the interlocking loops, knitted fabrics are more flexible and elastic, that is why they are often used for socks, jumpers and sports clothing that allows movement

Bonded fabrics are webs of fibres which are held together by glue, stitches or heat

There are **two** types of Bonded Fabric - Felted and Non Woven Fabrics. Both are formed by through compressions but in felted fabrics no glue is used

	Properties/Characteristics	Uses
Silk	Silk has a smooth texture and is one of the strongest natural fibres. It is also warm and crease resistant. However, it can be static and needs to be dry cleaned.	Evening wear, ties and scarves.
Wool	Heat insulating, soft, however can shrink when washed and it is not as durable as other natural fabrics like cotton and silk	Warm Clothing, suits, blankets and furniture upholstery
Linen	Linen is strong and cool to wear, but not very crease resistant.	tea towels, table cloths and summer clothing.
Cotton	Like linen, cotton is strong and cool to wear, but not very crease resistant.	jeans, shirts, T-shirts, sheets and towels.
Polyester	Polyester tends to feel slippery and silky. It can be blended with other fabrics, for example cotton, to provide more stretch or to reduce skin irritation.	All sorts of clothing, often as part of a blended fabric.
Nylon	lightweight, strong, durable and resistant to damage. It takes dye easily and so is available in a wide range of colours.	swimwear, tights and outdoor clothing and equipment such as tents.
Rayon Satin is made from Rayon	Rayon absorbs moisture so it is cool but warm and washes well. However, it is not very strong, is highly flammable and easily damaged.	blouses, dresses, suit linings, jackets and hats.

TEXTILES

SPaG

Grammar: Write in sentences

A sentence is a group of words that make sense. Sentences start with a capital letter and end with a full stop, question mark or exclamation mark. All sentences contain **clauses.** You should try to use a range of sentences when writing. There are three main types of sentences.

Simple sentence: A sentence containing one main clause with a subject and a verb.

He reads.
Literacy is important.

Compound sentence: Two simple sentences joined with a conjunction. Both of these simple sentences would make sense on their own. Varying conjunctions makes your writing more interesting.

He read his book because it was written by his favourite author.
Literacy is important so students had an assembly about reading.

Complex sentence: A longer sentence containing a main clause and one or more subordinate clause (s) used to add more detail.
The main clause makes sense on its own. However, a subordinate clause would not make sense on its own, it needs the main clause to make sense. The subordinate clause is separated by a comma (s) and/or conjunction. The clause can go at the beginning, middle or end of the sentence.

He read his book even though it was late.
Even though it was late, he read his book.
He read his book, even though it was late, because it was written by his favourite author.

How can you develop your sentences?

1. Start sentences in different ways. For example, you can start sentences with adjectives, adverbs or verbs.
Adjective: Funny books are my favourite!
Adverb: Regularly reading helps me develop a reading habit.
Verb: Looking at the front cover is a good way to choose a reading book.

2. Use a range of **punctuation**.

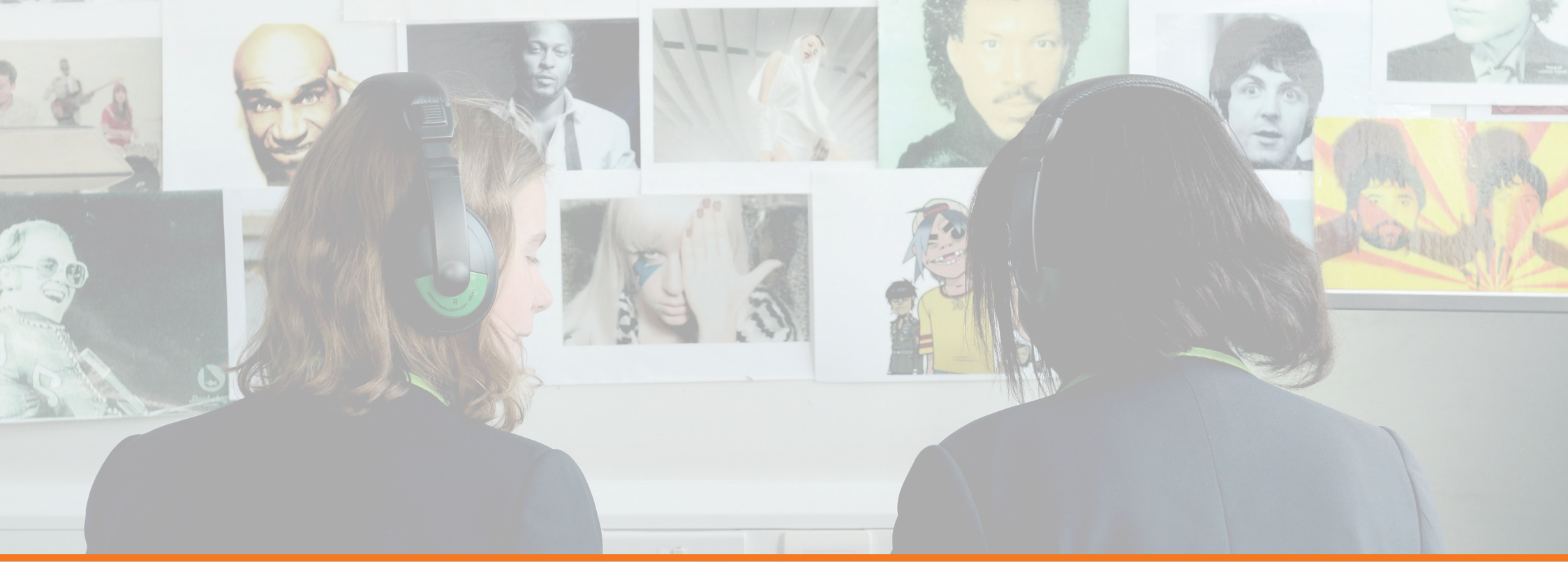
3. **Nominalisation**
Nominalisation is the noun form of verbs; verbs become concepts rather than actions. Nominalisation is often used in academic writing. For example:
It is important to **read** because it helps you in lots of ways.
Becomes: **Reading** is beneficial in many ways.

Germany **invaded** Poland in 1939. This was the immediate cause of the Second World War breaking out.
Becomes: Germany's **invasion** of Poland in 1939 was the immediate cause of the outbreak of the Second World War.

Connectives and Conjunctions	
Cause And Effect	Because So Consequently Therefore Thus
Addition	And Also In addition Further (more)
Comparing	Whereas However Similarly Yet As with/ equally/ Likewise
Sequencing	Firstly Initially Then Subsequently Finally After
Emphasis	Importantly Significantly In particular Indeed
Subordinate	Who, despite, until, if, while, as, although, even though, that, which

Haggerston School

LITERACY KNOWLEDGE ORGANISER



Year 9 Knowledge Organiser

cst Community Schools Trust

Haggerston School

Aspiration Creativity Character