ALL SAINTS'
CATHOLIC VOLUNTARY ACADEMY

Year 7 Absolutes

Opportunity . Achievement . Success

Fortitudo House

"Have courage, be strong through faith."

Term 2 2025-26

NAME:
FORM:

Year 7 A Midsummer Night's Dream Absolute

Features of Comedy

-Slapstick/Physical humour;
-Wordplay/Puns;
-Funny names;
-Music and dance;
-Ridiculous / exaggerated behaviour;
-Chaos;
-Incongruity; *(The___ is incongruous (out of place) with the_____)*
-Disguises/ costumes/ impersonating different genders;
-Timing;
-Foolish characters;
-Characters who think they possess talent when they don't.

Key ages / concepts

Concept	Definition
The Renaissance	A period of time where people started to become more interested in **philosophy, art, science and politics, and interested in looking back and revising ancient Greek and Roman literature**.
The Age of Enlightenment	**Science** became more understood as people learned more about how the world works. People became more interested in using **reason** and the evidence of the senses.
The Inkhorn Controversy	In the 1500s-1600s, the **borrowing of Greek and Latin words** by writers really **annoyed** some people, who said that writers doing this were **'diluting' or 'polluting' the English language** with these foreign words, which they called **'inkhorn terms'.**
Patriarchy (noun) **Patriarchal (adjective)**	A system where **men hold the power** – A patriarchy existed in Shakespearean times. *A Midsummer Night's Dream* is set in a patriarchal society.

Key Vocabulary

Word	Definition	Use in a sentence
Convention (noun)	A way of doing things that is accepted and followed.	The **conventions** of most Disney animations include songs, talking animals and a happy ending.
Incongruity (noun) **Incongruous (adj)**	If something is incongruous, it appears strange or wrong in a particular situation.	The elephant was **incongruous** in the classroom.
Amateur	Someone who is not a professional at doing something – usually does it unpaid.	I am an **amateur** tennis player.
Tragedy play	A genre of play based on human suffering, where terrible events befall the protagonist.	I cried a lot when I watched the **tragedy play.**
Highlight	To draw attention to.	My teacher **highlighted** my excellent homework to the class.
Establish	To set up/ introduce	Shakespeare **establishes** the Mechanicals as comic characters.
Criticise	To judge something, often by picking out the faults.	My teacher **criticised** my homework.

Key Techniques/forms/word classes

Word	Definition	Use in a sentence
Literal language	The actual meaning of the words without over exaggeration or saying something as something else (metaphor)	**Literally,** 'My teacher is a dragon' would mean that you had an actual fire breathing dragon for a teacher.
Figurative language	Language that does NOT use the word's literal meaning but instead uses language creatively. Techniques such as simile, metaphor, hyperbole and personification are all examples of figurative language.	**Figuratively,** 'My teacher is a dragon' would be a metaphor to suggest that your human teacher is terrifying like a dragon is.
Metaphor	Describing something as something else in order to suggest a similarity between the two.	My teacher **is** a dragon. The classroom **was** an oven.
Idiom	A common saying that uses metaphor – the meaning of the saying is hard to understand by the words alone, but we all accept what it means.	"It's raining cats and dogs" "You're driving me round the bend"
Slapstick comedy	A style of humour involving exaggerated physical comedy.	The pantomime was full of **slapstick comedy.**
Pun	A humorous use of a word or phrase that has several meanings that sounds like another word.	My favourite pun is in the joke: "Why didn't the skeleton go to the dance? He had **no body** to go with!"
Hyperbole	Over exaggeration for effect.	I am starving – I've waited a million hours for dinner.
Oxymoron	When two contradictory words are placed together in the same phrase	That movie was **bittersweet**. That was **seriously funny!** It was **awfully good.**
Imperative verb	A 'bossy' verb that issues a command.	e.g "Come here" "Let me go" "Put that down"
Pronoun	Used instead of a noun.	'I, me, we, you'
Superlative adjective	Adjectives that are used to indicate that a word is the most extreme it can be. This is created through the superlative adjective 'most' or the addition of 'est' to the end of the word.	This is the **most** difficult task. She was the pretti**est** cat. He was the small**est** man.
Parody	To imitate with deliberate exaggeration for comic effect.	The Mechanicals' play is a **parody** of other actors and writers' plays at the time.
Personification	Describing something non-human as if it has human characteristics, or is alive in some way.	The chairs **sat quietly** in the classroom. The books **danced** in the flames.

Geography – How should we manage fragile ecosystems?

Brazil

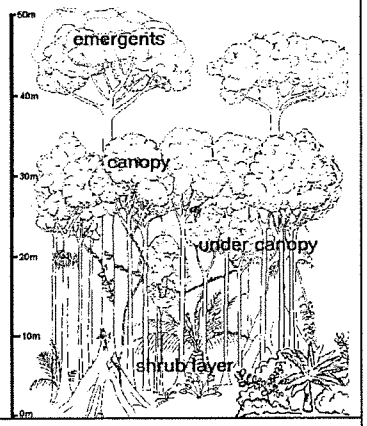
1. **Where is Brazil?** Brazil in the largest country in South America, north of Argentina, east of Peru and has a coastline along the Atlantic Ocean.
2. **What type of country is Brazil and what do they export?** Brazil is an NIC (newly industrialised country) which is starting to become richer because it exports raw materials such as: soybeans, iron ore, crude petroleum and raw sugar.
3. **What is the Amazon Rainforest?** The world's largest rainforest found in Brazil, Colombia, Peru, Venezuela, Ecuador, Bolivia, Guyana and Suriname. There are thousands of rivers and it is famous for its biodiversity.
4. **What animals are found in the Amazon Rainforest?** 427 mammal species, 1,300 bird species, 378 reptile species, 400 amphibian species. Jaguars, sloths, river dolphins, macaws, anacondas, glass frogs and poison dart frogs. 1/10 species in the world lives in the Amazon Rainforest.
5. **How big is the Amazon rainforest?** 5.5 million km² (5,500,000 km²).
6. **How big is the Amazon river?** 7,000km long but covers 7,050,000 km².
7. **Why are people a threat to the Amazon Rainforest?** Ranching and agriculture needs land clearing so rainforest trees are deforested. Commercial fishing in the Amazon River depletes the fish stocks which negatively impacts the ecosystem. Poaching of exotic or endangered animals. Damming rivers to create water supply or create hydroelectricity stops the wildlife migrating and the rainforest flooding naturally. Logging causes deforestation, destroying habitats and food sources.
8. **Why is the Amazon Rainforest dangerous for people?** Plants – some are poisonous, difficult to know which. Animals – Again, some are poisonous. Landscape – Heavy cover from canopy means navigation is very difficult. Weather – High temperatures and high humidity can lead to exhaustion. People – Tribes are protective of their territory so may attack intruders.
9. **Who lives in the Amazon Rainforest?** Tribes – Indigenous, or native, people have lived in the Amazon Rainforest for thousands of years. Now, some loggers and farmers also live on the edge of the forest.
10. **Why does the Amazon Rainforest need protection?** Rainforests produce high levels of oxygen and clean the air we breathe. Plants in the Amazon have also provided ¼ of medicines we use today. Plants in the Rainforest could be medicine for illnesses that have not evolved yet. The most biodiverse place in the world means the plant and animal species also need protecting.

Adaptations

16. **How has the Rafflesia adapted to survive in the rainforest?** Steeps sides lined with downward pointing hairs so insects enter the flowers, lose their footing and are prevented from leaving.
17. **How does colour help animals, birds and insects?** They can help to attract a mate, help to camouflage an animal or can be used as a warning for predators.
18. **How have fungi adapted to survive on the shrub layer?** Fungi colonise plant roots which provide water and nutrients. The plant roots provide a stable environment and the fungi where they break down materials like fallen leaves.
19. **How have liana vines adapted?** Lianas have roots in the ground but grow tall and thin, they hold themselves up by latching onto a tree and wrapping around it for support.
20. **How have epiphytes adapted to survive?** Epiphytes do not have roots, they grow on the branches of large trees to access sunlight and use nutrients from the tree for survival.

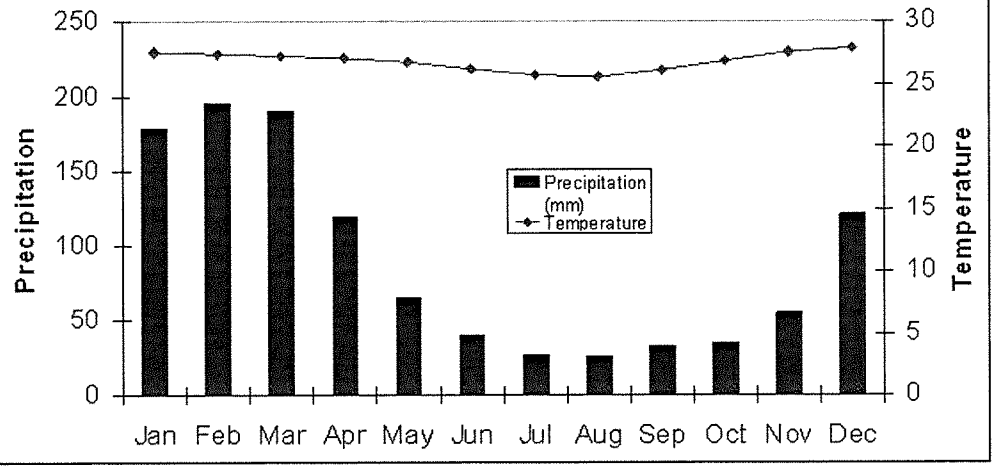
Structure of the Tropical Rainforest

11. **What are the layers of the rainforest from top to bottom?** Emergent, canopy, under canopy, shrub layer.
12. **What flora and fauna would you find in the emergent layer?** The tallest trees that can withstand hot temperatures and strong winds. Birds like the crowned eagle, insects and butterflies.
13. **What flora and fauna would you find in the canopy layer?** Tall trees with broad leaves, epiphytes and orchids. Birds like the grey parrot and spider monkeys.
14. **What flora and fauna would you find in the under canopy layer?** Small trees (3m tall) which can grow in shade (only 5% of sunlight reaches the under canopy). Sloths, poison dart frogs and monkeys.
15. **What flora and fauna would you find in the shrub layer?** Only 2-3% sunlight means the main flora are fungi. Larger fauna like jaguars, snakes and alligators.



Rainforest Climate

21. **Where do you find rainforests and why?** Between the tropics of cancer and Capricorn (10° north and south of the equator) because the climate here is warm and rainy all year round.
22. **Why does it rain so much in the rainforest?** Rainforests are near the equator which means the sun's rays are more concentrated which evaporates more water that can then condense, become clouds and rain.
23. **In the Amazon rainforest, which months have more rain?** January, February and March with April and December also having higher amounts (shown in climate graph).
24. **What is the avergae temperature in the Amazon rainforest?** 27 °C (shown in climate graph).
25. **What is the precipitation range in the Amazon rainforest?** 195mm-20mm = 175mm



Geography – How should we manage fragile ecosystems?

Animals

1. **What are adaptations?** Living things change over time to survive in their environment. This is for both plants and animals.
2. **What are some of the mammals that live in the TRF?** Chimpanzee, Jaguar, Tarsier, sloth, spider monkey, manatee (marine), Agouti (rodent), Tent making bat, howler monkey, Golden Lion tamarins, vampire bat, tapir, Tucuxi (pink dolphin).
3. **What are some of the birds that live in the TRF?** Toucan, Macaw.
4. **What are some of the reptiles that live in the TRF?** Anole, Iguana, Boa constrictor, anaconda, Caiman, small turtles.
5. **What are some of the amphibians that live in the TRF?** Red eyed tree frog, poison arrow frog.
6. **What are some of the insects that live in the TRF?** Rhinoceros beetle, Morpho butterfly, Leafcutter ant.
7. **What are some of the fish that live in the TRF?** Red bellied piranha



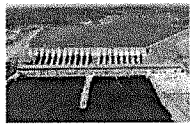
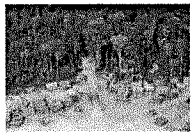
People

8. **How many people live in rainforests worldwide?** They have never been counted but geographers estimate around 50,000,000 people live in rainforests across the globe.
9. **What is the most common way of living in rainforests?** Tribes who only rely on the forest for survival.
10. **What type of houses do they live in?** Tribes where huts or treehouses are made using only natural materials from the forest. Some tribes have 2 big communal houses, one for the men and one for the women.
11. **What do they eat?** A mixture of fruits and small mammals, depending on the forest they live in.
12. **What are some examples of tribes who live in rainforests?** The Pygmies in central Africa. The Huli in Papua New Guinea. The Yanomami in South America.
13. **Why are the tribes under threat?** People from outside the rainforest want to tap into the natural resources. This leads to deforestation, destroying the tribes' homes, food supply and medicine.



Uses of the Tropical Rainforest

14. **Why is there development in the Amazon?** Companies can export minerals, make money through foreign exchange, pay off debts to other countries or use minerals to build up existing industries so Brazil becomes wealthier.
15. **How is farming damaging the Amazon?** Traditional farming doesn't cause damage and is sustainable. 'Slash and burn' farming is used where trees are felled and burned to make the soil more fertile. After 3-5 years the soil is infertile so farmers move on to the next area of land. Large scale commercial farming doesn't allow land to regrow so is unsustainable.
16. **How does logging impact the Amazon?** Commercial logging is the major source of rainforest destruction with 5,000,000 ha of forest destroyed every year. Trees are felled and removed from the forest to be sold as building materials, fuel or many other reasons.
17. **How does cattle ranching affect the Amazon?** Deforestation occurs to make space for cattle which is sold cheaply to HICs for the meat market.
18. **How does water supply impact rainforests?** With a growing global population, water supply is a constant issue. A solution for this is to build dams in rivers to create reservoirs of fresh water. However, these reservoirs flood the land and damage the forest. The wildlife in the water is also damaged.


Ecotourism

19. **What is one of the biggest social problems in tropical rainforests?** Preserving culture.
20. **What is one of the biggest economic problems in tropical rainforests?** Selling natural resources for development.
21. **What is one of the biggest environmental problems in tropical rainforests?** Deforestation.
22. **What is ecotourism?** Sometimes called 'green tourism', it is a form of sustainable tourism where protection of the local environment and the way of life of the local people is considered the most important. It is a way of overcoming the problems caused by tourism.
23. **What activities would ecotourists take part in?** Jungle hike where a guide teaches you about the wildlife in the forest. Canoeing along the river, tree climbing and night walks are also popular. Fun activities mixed with education are common for ecotourism.
24. **What are some of the rules ecotourists have to follow?** They are not allowed to bring non-biodegradable plastics in to the forest. They must only walk along the designated paths to reduce trampling and protect animals. They must travel by foot or public transport to reduce carbon emissions.



Test yourself questions

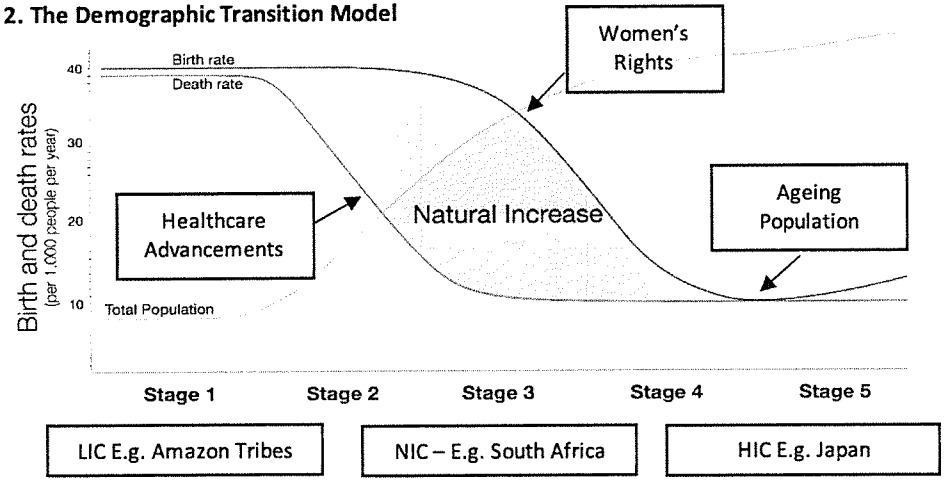
1. Describe the distribution of tropical rainforests.
2. How can temperatures in the tropical rainforest be described?
3. Explain three reasons as to why tropical rainforests are very important.
4. Explain why deforestation is happening in the TRF.
5. Describe one impact of deforestation that can be viewed as a positive.
6. Outline and explain the four ways in which TRF's can be managed.
7. Describe a characteristic of the TRF climate.
8. Outline an environmental impact of deforestation.
9. Suggest two ways in which TRF's can be more sustainable.
10. Describe the different plant layers in the TRF.

Population - How and why are countries populations different?

Population Introduction

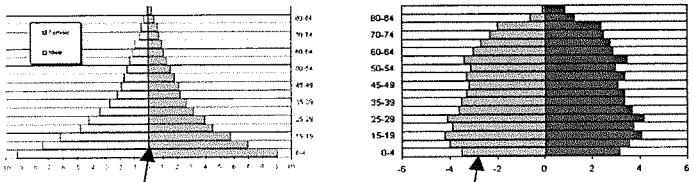
1.Population is uneven around the world; some countries have very large populations like China (1.4 billion) and India (1.4 billion). Whereas other countries have very small populations like the Vatican City (800) and Tuvalu (12,000). Globally population has increased over time. From 1050-1750 total global population was around 0.5 billion, since 1750 total global population has increased rapidly, up to the 8 billion we have on earth today. The vast majority of this growth is occurring in LIC's as the women can have unequal rights, being expected to stay at home raising children. Contraception is not widely available and children can also work in some LIC's which earns the family money.

2. The Demographic Transition Model



3. Population Pyramids

Show us a countries % of population a certain age and gender



Typical PP for a LIC

Typical PP for a HIC

Why is the shape like it is?

4. Case Study - China's Population

China is a NIC located in East Asia. I the 1960's population growth was encouraged by the Chinese Government meaning on average each woman had 7 children. During 1970 China faced a famine and the Government realised something needed to be done as China was overpopulated.

In 1979 the Chinese Government introduced the 'One Child Policy' this meant that each couple in China could only have one child.

The one child policy was controlled with the following in order to make it a success:

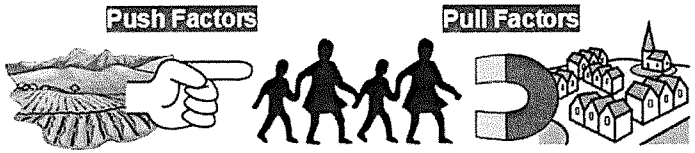
- The Government issued hefty fines to people who did not follow the rule, meaning they then had little money to support themselves and their family.
- The Chinese Police were used to keep an eye out on the population. The Government however realised that the population was wary of the police and wouldn't tell them anything. This led to the Government hiring 'Granny Police' which were undercover police officers who acted like friendly elderly people in the population to try and seek information about who has had/is having a 2nd child.
- The Chinese Government promoted and gave out free contraception to be used in order for couples to avoid having children.
- The Chinese Government forced abortions on women who were pregnant with their 2nd child.

By 2008 each woman in China had on average 2 children meaning the One Child Policy was successful in what it set out to do, reduce population. In 2015 the One Child Policy ended.

Population - How and why are countries populations different?

5. Migration

The reasons why people chose to migrate can be split up into push and pull factors. A push factor is something that encourages a person to leave a place. A pull factor is something that attracts a person to a place.



Push Factors	Pull Factors
• few services • lack of job opportunities • unhappy life • poor transport links • natural disasters • wars • shortage of food	• access to services • better job opportunities • more entertainment facilities • better transport links • improved living conditions • hope for a better way of life • family links

6. Densely and sparsely populated

Physical Factors	Densely Populated	Sparsely Populated
1. Relief	Flat land e.g. Ganges Valley in India	Mountainous land e.g. Himalayas
2. Resources	Rich in natural resources (e.g. coal, oil, wood, fishing etc.) e.g. Western Europe	Few natural resources e.g. The Sahel
3. Climate	Mild climates as there is enough rain and heat to grow crops e.g. UK	Extreme climates e.g. the Sahara Desert
Human Factors	Densely Populated	Sparsely Populated
4. Political	Stable governments e.g. Singapore	Unstable Governments e.g. Afghanistan.
5. Social	A range of services and facilities e.g. USA	A lack of services and facilities e.g. Scandinavians
6. Economic	Good job opportunities E.g. New York	Limited job opportunities e.g. Amazon Rainforest

Key terms:

Population – All the inhabitants of a particular place.
Population growth - The increase in the number of people in a population
Birth Rate – Number of live births every year per 1,000 of the population.
Death Rate - Number of people who die every year per 1,000 of the population.
Natural Increase - This is the birth rate minus the death rate.
Overpopulation – When a country has too many people.
Migration – the movement of people from one area to another.
Settlement -A place where people live, this can be a large or a small settlement.
Megacity - A Megacity is a City that has over 10 million inhabitants.
Densely populated - an area of land that contains a large amount of people.
Sparsely populated – An area of land that contains few people.
Uninhabitable– An area of land that is not suitable for humans to live on.

Test Yourself Questions:

1. Explain how global population has changed over time
2. Explain why population growth is the fastest in LIC's
3. Describe and explain the demographic transition model
4. Explain what issues China faced when it was overpopulated?
5. Explain the methods the Chinese Government put in place to reduce China's population
6. Evaluate the view that Chinas One Child Policy was a success
7. Describe the differences between push and pull factors
8. Give your own push and pull factors for leaving Mansfield in the future
9. List some places that are sparsely populated and explain why using both human and physical factors
10. List some places that are densely populated and explain why using both human and physical factors

History Year 7

Topic Williams Control (Unit 3)

Key words		
1.	Medieval	The period between 1066-1500.
2.	Feudal System	The social structure of Medieval England.
3.	Villein	Peasant at the bottom of the Feudal system.
4.	Baron	Noble land owner that pledged their loyalty to the King.
5.	Normans	People from the Normandy region of France, led by King William.
6.	Motte and Bailey	The first type of castle made by William. It was made out of wood and had a higher Motte part and a lower Bailey part.
7.	Stone Keep Castle	Similar to Motte and Bailey but made of stronger materials such as stone.
8.	Concentric Castle	A castle with two or more supporting walls with a stone keep.
9.	Domesday Book	A record of what everyone owned in the country in order to decide how much tax people should pay.
10	Taxes	Money collected from people by the King.

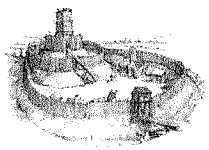
Key events: Castles

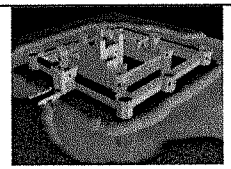
William kept control by building castles throughout England. Over time 3 types of castles developed throughout Britain:

Motte and Bailey: The first castles built to fight against rebellions. They were built quickly and made out of wood, meaning that they were not very strong and could easily be destroyed. The Bailey was on flat land where the majority of the people lived. The Motte was the higher land of the castle where the fort was.

Stone Keep: This castle was now made out of stone and had tower a a form of defence. The main part of the castle was the Keep, a large square tower, used as the main defence.

Concentric– At least two surrounding walls with the inner wall higher than the outer to help defence. These protected the central tower which was made of stone.



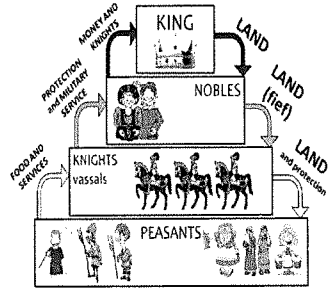


Key events: Problems faced

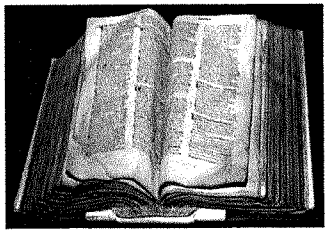
1.	Short term	Threat of invasion from the North; many English Lords did not accept his control and many of Harold's supporters were still in London.
2.	Long term	Needed to collect taxes but to do this he needed to find out who owned what and needed to make sure the whole country was under his control. This resulted in creating the Feudal system, the Domesday book and building castles.

Key events: The Feudal System

After taking the throne in 1066, William had a few problems: he doesn't trust the English lords, who do not like him, he had to force the English to accept him as King and many were rebelling and fighting against him. He had to pay the French knights who helped him win the throne. His solution was to crush the rebellions and take land from the English lords to give to his supporters. He then had his supporters helping him to control the whole country. He also set up the Feudal System which forced the English to give William their taxes and loyalty in return for protection and land to farm. William was at the top of this system as he had all the land and money, which he gave to the Barons. They promise William their money, soldiers and loyalty. They give the land to the Knights in return for loyalty and military service. Finally the knights give the land to the peasant to farm in return for money and services.



Feudal Pyramid of Power



Key events: Domesday Book

In 1086, William sent out surveyors to every part of England, with orders to list:

- How much land there was
- Who had owned it in 1066 and who owned it now
- What was the place like and who lived there
- How much was it worth in 1066 and how much now.

William did this to allow him to effectively tax the land and earn money and so that he knew what could be seized if the landowners didn't show loyalty.

History Year 7

Topic Medieval Life

Timeline		
1.	1170	Thomas Beckett is killed
2.	1122-1204	Eleanor of Aquitaine
3.	1215	Magna Carta
4.	1265	De Montfort's Parliament
5.	1312-1337	Mansa Musa
6.	1348	Black Death
7.	1373-1399	Jadwiga of Poland
8.	1381	Peasants Revolt

The Black Death (1348-9)

Causes

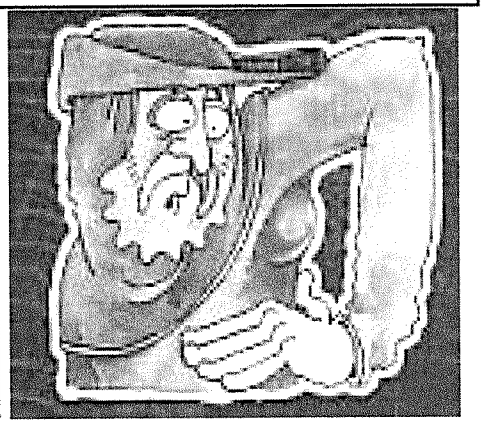
God deserting mankind/ unusual position of the planets/ impure air from a volcano or earthquake/ the Jews

Treatments

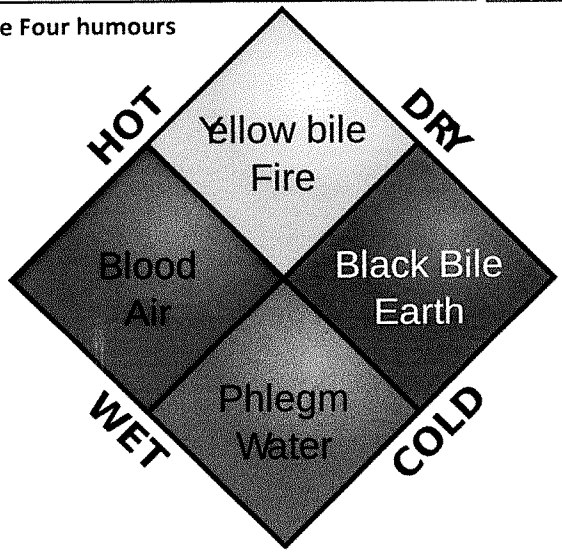
Ask for God's forgiveness/ bleeding/ purging/ strong smelling herbs/ theriaca/ lancing buboes

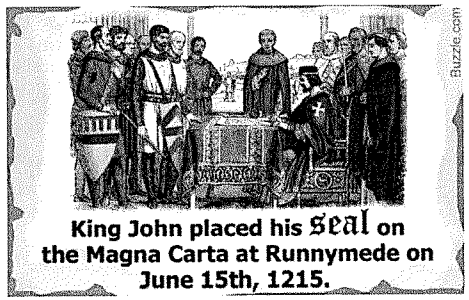
Prevention

Pray/ Pilgrimage/self-flagellation/ escape!/ carry a posy of flowers/ do joyful things!/ quarantine laws



The Four humours





Key words		
1.	Magna Carta	A document signed by King John to reduce the power of the King and make it more difficult for the King to make laws.
2.	The Crusades	The 'Wars of the Crosses', a Holy war in which crusaders from Europe set out to fight Muslim Turks.
3.	Tithe	A medieval tax involved paying one tenth of all farm produce to the church
4.	Cruck House	Peasants home made out of wood and mud
5.	Black Death	The disease that affected England from 1348 onwards. It is estimated that it killed 40% of the population.
6.	Bubonic Plague	The more common Plague that was carried in the bloodstream of rats. Fleas bit the rats and become infected. They then hopped onto humans, bit them and passed on the disease.
7.	Pneumonic Plague	This was more deadly. It was caught by breathing in the germs when an infected person coughed or sneezed. They would cough up blood and their lungs rotted inside them .
8.	Doom Painting	A painting in Medieval churches which showed the joys of heaven and the horrors of hell.
9.	Barber Surgeon	Performed simple surgery and cut peoples hair!
10.	Apothecaries	People who made and sold medicines made form plants and herbs.
11.	Blood-letting	The practice of making someone bleed to help cure illness.
12.	Flagellants	People who whipped themselves in order to ask God to forgive their sins. Seen as a prevention for the Black Death.
13.	Four Humours	A theory on the cause of illness first proposed by Hippocrates.
14.	Astronomy	The study of the planets and stars
15.	Symptoms	Signs of an illness or disease

History Year 7 Topic The Tudors-Henry

Timeline		
1.	1485=1509	Henry VII is king
2.	1509-1547	Henry VIII is king
3.	1547-1553	Edward VI is king
4.	1553-1558	Mary I is queen
5.	1558-1603	Elizabeth I is queen
6.	22nd August 1485	Battle of Bosworth took place, ending with Henry crowned as the new king.
7.	1509	Henry VIII marries Catherine of Aragon
8.	1516	Mary, Henry's first child is born
9.	1533-34	Henry breaks with Rome and creates the church of England
10.	1533	Henry Divorces Catherine and marries Anne Boleyn
11.	17th September 1533	Elizabeth is born– Henry VIII's second child
12.	1536	Dissolution of the monasteries begins
13.	19th May 1536	Anne Boleyn is beheaded
14.	30th may 1536	Henry VIII marries Jane Seymour
15.	1537	Edward is born Henry's third child
16.	1537	Jane Seymour dies
17.	1540	Henry marries Ann of Cleves but the marriage is annulled
18.	1540	Henry marries Catherine Howard
19.	1542	Catherine Howard is executed
20.	1543	Catherine Parr becomes Henry's sixth wife





Key words		
1.	Monarch	the King or Queen
2.	restored	return something to the way it was before
3.	Dynasty	people in the same family who have influence
4.	Beheaded	to have your head cut off
5.	Protestant	a Christian religion focussed on the Bible
6.	Regency Council	someone who rules the country when the monarch is too young
7.	War of the Roses	Battle for power between the House of York (white rose) and House of Lancaster (red rose)
8.	Reformation	Reformation, also called Protestant Reformation, the move of part of the church away from the authority of the Pope. Its greatest leaders undoubtedly were Martin Luther and John Calvin.
9.	Dissolution of the monasteries	The closure of English Monasteries by Henry VIII in 1536-1540. Monasteries were run by the catholic church and were homes for Monks and Nuns
10.	Heir	A person who is next in line to the throne

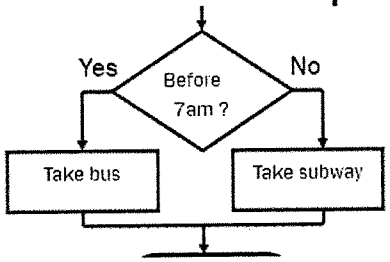
Key Individuals		
1.	Martin Luther	A German priest whose *Ninety-Five Theses* began the Protestant reformation in 1517.
2.	Thomas Cromwell	He helped the King in breaking from Rome and establishing his own Church in England, with Henry as Supreme Head of the Church. He had a large role in the Dissolution of the Monasteries from 1536 onwards. However, he fell out of favour following the disastrous Anne of Cleaves marriage and was executed in 1540.
3.	King Richard III	Richard was King of England and Lord of Ireland from 1483 until his death in 1485. He was the last king of the House of York and the last of the Plantagenet dynasty.
4.	Lady Jane Grey	She was the great grand-daughter of Henry VII and named by Edward to be his successor to the throne of England. She became known as the 'nine day queen'
5.	Pope Clement VII	Pope who refused Henry's request for a divorce
6.	Cardinal Wolsey	Henry VIII's most powerful minister. But he fell out of favour for not being able to get the Pope to grant Henry's divorce from Catherine of Aragon.

Year 7 Computing All Saints' Absolutes: Algorithms

Flow charts like pseudocode are informal but the most common flow chart shapes are:

	Line	An arrow represents control passing between the connected shapes.
	**Process**	This shape represents something being performed or done.
	**Sub Routine**	This shape represents a subroutine call that will relate to a separate, non-linked flow chart
	**Input/Output**	This shape represents the input or output of something into or out of the flow chart.
	**Decision**	This shape represents a decision (Yes/No or True/False) that results in two lines representing the different possible outcomes.
	**Terminal**	This shape represents the "Start" and "End" of the process.

Example – IF and ELSE



IF time is before 7
Walk
ELSE (if not)
Take bus

KEY VOCABULARY	
Algorithm	An abstracted program which completes a given task, whatever the data provided.
Abstraction	Abstraction is moving a problem out of the specific in order to create a general solution that would work in similar scenarios. Ignoring the gritty details to focus on the problem.
Decomposition	Breaking a problem down into smaller, computational solvable chunks.
Pseudo Code	A structured way of planning code, which is 'computational' in style (uses Boolean logic, variables, comparisons and arithmetic for example) but is not tied to a strict high-level language's syntax.
Flow Diagram	A diagram, made using specific shaped boxes, that mocks up the flow of a program through various stages, processes and decisions.

There are three basic building blocks (constructs) to use when designing algorithms:
Sequencing (the specific order in which instructions are performed in an algorithm.)
Selection (for a decision or question)
Iteration (to repeat something often called a 'loop'.)

Year 7 Computing All Saints'
Absolutes: Number Systems

Computers use binary numbers, the digits 0 and 1, to store data. This is because computer systems use switches to represent data and switches have only two states: ON and OFF

Keywords for Binary :

Binary	A binary number is made up of just 2 digits and is known as base 2.
Denary	A denary number is made up of 10 digits and is known as base 10.
Data	The characters, or symbols, on which operations are performed by a computer, which may be stored and transmitted in the form of electrical signals and recorded on media.
Convert	To change the form, character, or function of something
Hexadecimal	Hexadecimal (or hex) is a base 16 system used to simplify how binary is represented.

Things to remember when adding binary numbers

Keep your numbers in the correct columns

1+1 = 2 = 10 *in binary*

1+1+1 = 3 = 11 *in binary*

Why do computers use binary numbers?

ON corresponds to 1 and OFF corresponds to 0.

All computer programs, must therefore be translated into binary code for the computer to understand and execute the instruction

Note : Humans cannot use this system easily.

Converting from binary to denary

To convert a **binary** number to denary, start by writing out the binary place values. In denary, the place values are 1, 10, 100, 1000, etc – each place value is 10 times bigger than the last. In binary, each place value is 2 times bigger than the last (i.e. increased by the power of 2). The first few binary place values look like this.

16	8	4	2	1
1	0	0	1	1

16 + 2 + 1 = 19

To convert a binary number into a denary number, add the *numbers in the column headings* for the columns that contain a **1**.

There is a **1** in 16, 2 and 4 columns, so add these together to find the denary number of 19.

Bits and bytes

1 bit - stands for *binary digit* and is the **smallest unit of binary information**

Nibble - 4 bits (half a byte)

Byte - 8 bits

Converting Denary to binary

1 To convert 13 to a binary number, set the table

13

16	8	4	2	1

2 Add a 0 in the first column heading

13 is under 16 so the first digit will be 0

16	8	4	2	1
0				

3 As 13 is over 8 place **1** in the column heading 8

13 is over 8 so the next digit will be 1 then subtract 8 from 13

16	8	4	2	1
0	1			

4 Now 13 – 8 = 5, so to make 5 I need 4 and 1

16	8	4	2	1
0	1	1		

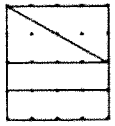
5 Place a 0 in the empty column

16	8	4	2	1

An overflow error is when the result of a binary calculation is too long for a computer to process. For example, if the answer is 9 bits long, but a byte can only fit 8 bits

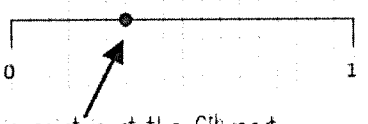
fractions

Fractions – on a diagram



The denominator is represented by EQUALLY sized parts – this is split into quarters

Fractions – on a number line



One whole split into 18 equal parts

18 is the **denominator**

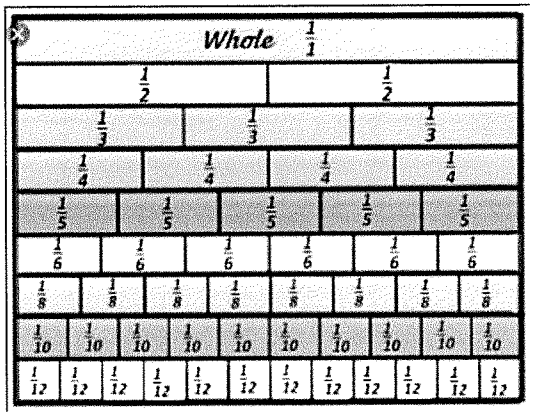
This point is at the 6th part

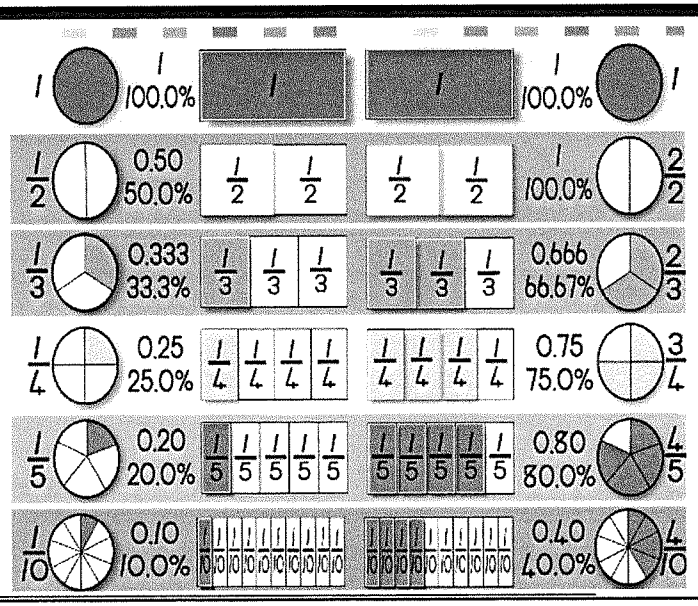
6 is the **numerator**

$\frac{6}{18} \leftarrow \frac{3}{9} \leftarrow \frac{1}{3}$

Equivalent fractions

Represent equivalence with fraction walls





If the denominator is 10,100,1000 etc → use place value, e.g. $\frac{3}{10} = 0.3$

If the denominator is a factor of 10,100,1000 → use equivalent fractions e.g. $\frac{3}{5} = \frac{6}{10} = 0.6$

Otherwise use short division → $\frac{1}{3} = 0.333...$

Convert this fraction to a decimal.

$$\frac{9}{20} \overset{\times 5}{\rightarrow} \frac{45}{100} = 0.45$$

What do we need to multiply the denominator by to make 100?

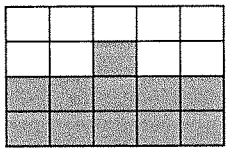
Convert these fractions into percentages.

$$\frac{1}{2} \overset{\times 50}{=} \frac{50}{100} = 50\% \qquad \frac{1}{20} \overset{\times 5}{=} \frac{5}{100} = 5\%$$

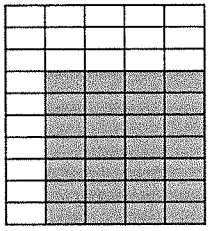
Remember to multiply the denominator to make 100.

As a **proportion**, which of these shapes has **more blue**?

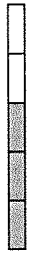
A



B



C

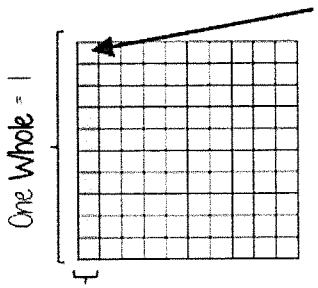


$\frac{11}{20} = \frac{55}{100} = 55\%$ $\frac{28}{50} = \frac{56}{100} = 56\%$ $\frac{3}{5} = \frac{60}{100} = 60\%$

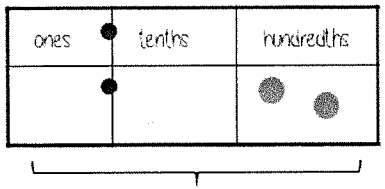
decimals

Fraction: how many parts of a whole we have
Decimal: a number with a decimal point used to separate ones, tenths, hundredths etc
Percentage: a proportion of a whole represented as a number between 0 and 100
Place value: the numerical value that a digit has decided by its position in the number
Placeholder: a number that occupies a position to give value
Interval: a range between two numbers
Tenth: one whole split into 10 equal parts
Hundredth: one whole split into 100 equal parts

Tenths and hundredths



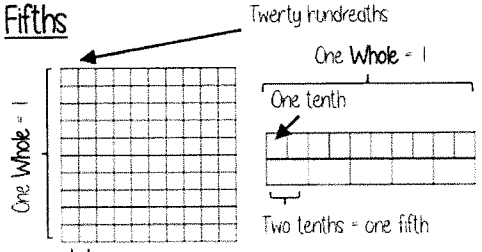
One **hundredth** (one whole split into 100 equal parts) = $\frac{1}{100}$ = 0.01



0 ones, 5 tenth and 2 hundredths
0 + 0.1 + 0.1 + 0.1 + 0.1 + 0.1 + 0.001 + 0.001
= 0 + 0.5 + 0.02
= 0.52

One **tenth** (one whole split into 10 equal parts) = $\frac{1}{10}$ = 0.1

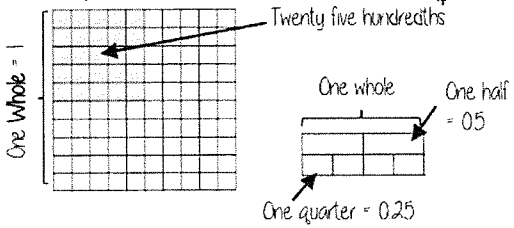
Fifths



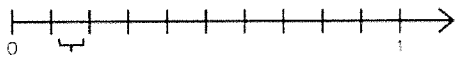
One **fifth** (one whole split into 5 equal parts) = $\frac{1}{5}$ = 0.2

Quarters

One **quarter** (one whole split into 4 equal parts) = $\frac{1}{4}$ = 0.25

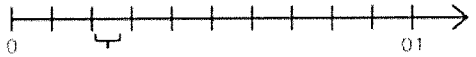


On a number line



One whole – split into 10 equal parts

One tenth = $\frac{1}{10}$ = 0.1



One tenth – split into 10 equal parts

One hundredth = $\frac{1}{100}$ = 0.01

Which is bigger 0.35 or $\frac{4}{10}$?

$\frac{4}{10}$ = 0.4, **so $\frac{4}{10}$ is bigger**

Which is bigger 0.7 or $\frac{9}{100}$?

$\frac{9}{100}$ = 0.09, **so 0.7 is bigger**

There are 3 types of decimal....
Terminating Decimals, e.g. 0.74 = $\frac{74}{100}$
Recurring Decimals, e.g. 0.333.... we use an equation to write them as a fraction
Irrational Numbers: cannot be written as fractions

Convert $0.\dot{8}\dot{9}$ to a fraction.

Let $x = 0.\dot{8}\dot{9}$
$100x = 89.\dot{8}\dot{9}$
$99x = 89$
$x = \frac{89}{99}$

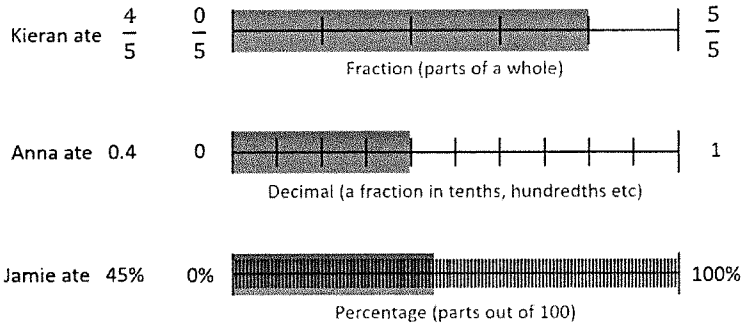
Write each of these as a fraction:

$0.\dot{3}\dot{7}$ $\frac{37}{99}$ $0.\dot{2}3\dot{1}$ $\frac{231}{999} = \frac{77}{333}$

Fractions, decimals and percentages

Fractions, **Decimals** and **Percentages** are different ways of expressing the quantity of a whole.

Kieran, Anna & Jamie each had a chocolate bar.
Who ate the most, who ate the least?



Place these in order from least to greatest.

0.2 $\quad$ 8% $\quad$ $\frac{3}{20}$

$\downarrow$ $\quad$ $\downarrow$ $\quad$ $\downarrow$

$\div 100$ $\quad$ $\times 5$

$\frac{3}{20} = \frac{15}{100}$

$\times 5$

$= 0.15$

0.2 ③ $\quad$ 0.08 ① $\quad$ ② 0.15

List **original** numbers.

8% $\quad$ $\frac{3}{20}$ $\quad$ 0.2

Put these numbers in order from least to greatest.

$\frac{4}{5}$ $\quad$ 88% $\quad$ 0.09

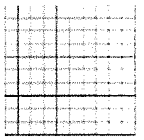
0.09 $\quad$ $\frac{4}{5}$ $\quad$ 88%

Put these numbers in order from least to greatest.

94% $\quad$ $\frac{19}{20}$ $\quad$ 0.49

0.49 $\quad$ 94% $\quad$ $\frac{19}{20}$

Convert FDP

$\frac{70}{100}$ → This also means 70 ÷ 100 → 70 out of 100 squares → 70 "hundredths" = 7 "tenths" = 0.7 →  → 70 hundredths = 70%

Using a calculator

 → S⇌D Convert to a decimal

This will give you the answer in the simplest form

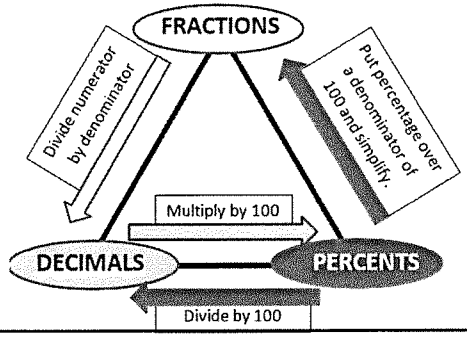
× 100 converts to a percentage

Be careful of recurring decimals

eg $\frac{1}{3}$ = 0.3333333

$= 0.\dot{3}$

The dot above the 3



Convert 0.452 to a percentage.

$0.452 \times 100 = 45.2$

$0.452 = 45.2\%$

Convert 400% to a fraction or integer

$400\% = \frac{400}{100} = 4$

Convert 18.5% to a decimal.

$\frac{18.5}{100} = 18.5 \div 100 = 0.185$

Convert $\frac{1}{8}$ to a percentage.

$\frac{1}{8} = 0.125 = 12.5\%$

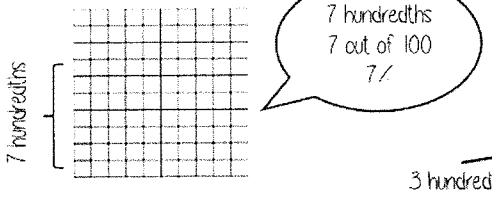
It will help if you can memorise these common conversions.

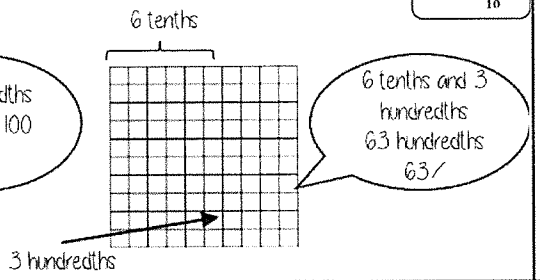
Decimal	Percentage	Fraction
0.5	50%	$\frac{1}{2}$
0.25	25%	$\frac{1}{4}$
0.75	75%	$\frac{3}{4}$
0.2	20%	$\frac{1}{5}$
0.1	10%	$\frac{1}{10}$
$0.\dot{3}$	$33.\dot{3}\%$	$\frac{1}{3}$

percentages

Percentages on a hundred grid

100% = a whole = 100 hundredths



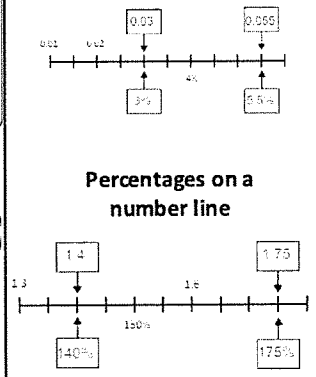


Remember!

50% = $\frac{1}{2}$

25% = $\frac{1}{4}$

10% = $\frac{1}{10}$



What is 60% of £40?

What is 40% of £60?

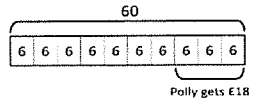
£24

What's interesting about the answers?
Can you explain why?

$$\frac{60}{100} \times 40 = \frac{40}{100} \times 60$$

It works for any percentage!

Anna had £60.
She gave 30% to Polly.
How much does Polly get?

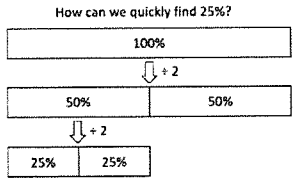


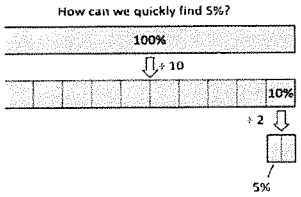
Sam stole 28% of the money from the safe!

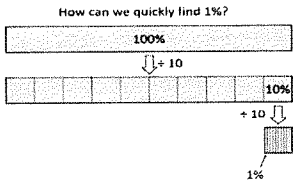
× 2: ~~10% = $ 80~~ → 20% = $160 × 2

× 8: ~~1% = $ 8~~ → 8% = $ 64 × 8

28% = $224

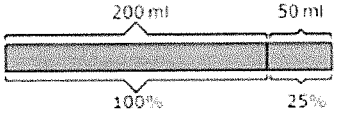






Percentage Increase

A bottle of orange juice comes with 25% extra free. A normal size bottle is 200ml. How much juice is there in this bottle?



25% of 200 = 200 ÷ 4
= 50

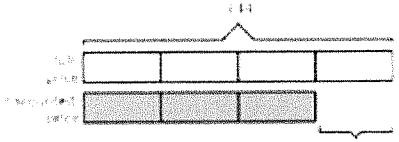
200 + 50 = 250

The bottle has 250ml.

Interest - is money that is paid regularly at a particular percentage, usually when money has been lent or borrowed

Percentage Decrease

A holiday club costs £44 for the first child in a family. There is a 25% discount for a second child. What is the discounted price?



25% of 44 = 44 ÷ 4
= 11

44 - 11 = 33

The discounted price of the holiday club is £33.

This type of calculation is most useful when using a calculator.

For a percentage increase

Step 1: Add the percentage that we are increasing by to 100%
Step 2: Divide by 100

e.g. What is the multiplier for a 15% increase?

A 15% increase = 100% + 15% = 115%
= 115% ÷ 100 = 1.15
Multiplier x1.15

For a percentage decrease

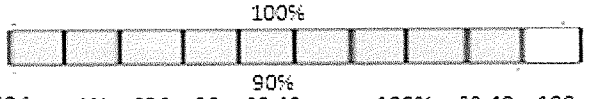
Step 1: Subtract the percentage that we are decreasing by from 100%
Step 2: Divide by 100

e.g. What is the multiplier for a 33% decrease?

A 33% decrease = 100% - 33% = 67%
= 67% ÷ 100 = 0.67
Multiplier x0.67

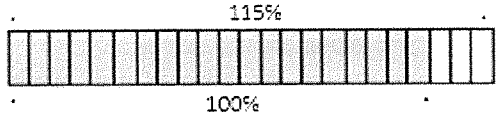
Reverse Percentage - used when the percentage and the final number is given, and the original number needs to be found.

e.g. At a shop during a discount event, everything is reduced by 10%. Tia bought a dress for £36. What is the original price?



90% is £36 1% = £36 ÷ 90 = £0.40 so 100% = £0.40 x 100 = £40

e.g. Maggie takes her family out for a meal and she decides to tip 15%. Maggie's pays £92. What was the cost the food?



115% = £92 1% = £92 ÷ 115 = £0.80

100% = £0.80 x 100 = £80

$$\text{Percentage Change Formula} = \frac{\text{New Value - Original Value}}{\text{Original Value}} \times 100$$

e.g. Last month Sophie earned £200. This month she earned £300. What is the percentage increase?

Percentage change = $\frac{300 - 200}{200} \times 100 = 50\%$ increase

Keywords

Equality: two expressions that have the same value
Equation: a mathematical statement that two things are equal
Equals: represented by '=' symbol – means the same
Solution: the set or value that satisfies the equation
Solve: to find the solution
Inverse: the operation that undoes what was done by the previous operation (The opposite operation)
Term: a single number or variable
Like: variables that are the same are 'like'
Coefficient: a multiplicative factor in front of a variable e.g 5x (5 is the coefficient, x is the variable)
Expression: a maths sentence with a minimum of two numbers and at least one math operation (no equals sign)

Algebra has rules for notation so everyone can understand the calculations that are being expressed.

Often x is used as the unknown value (the variable).

Adding 3 to the variable

$x + 3$

Subtracting 3 from the variable

$x - 3$

Multiplying the variable by 3

$3x$

Dividing the variable by 3

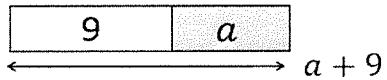
$\frac{x}{3}$

Multiplying the variable by itself

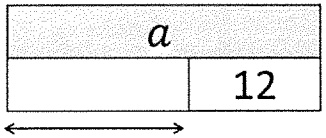
x^2

Finding the **Square Root** of the variable

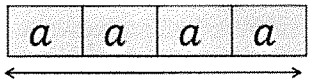
$\sqrt{x}$



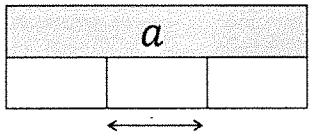
$a + 9$



$a - 12$



$4a$



$\frac{a}{3}$

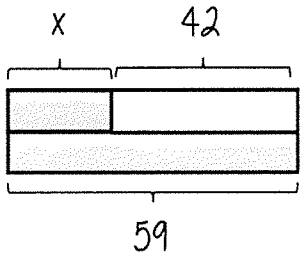
Solve one step equations (+/-)

There is more to this than just spotting the answer

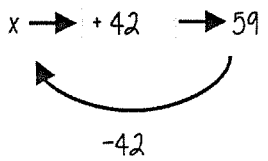
$x + 42 = 59$

$x + 42 = 59$
$42 + x = 59$

$59 - x = 42$
$59 - 42 = x$



Don't forget you know how to use function machines

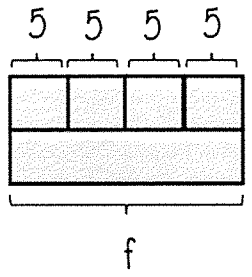


Solve one step equations (x/÷)

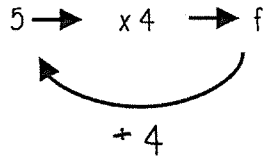
$\frac{f}{4} = 5$

$f - 4 = 5$
$f - 5 = 4$

$5 \times 4 = f$
$4 \times 5 = f$



Don't forget you know how to use function machines



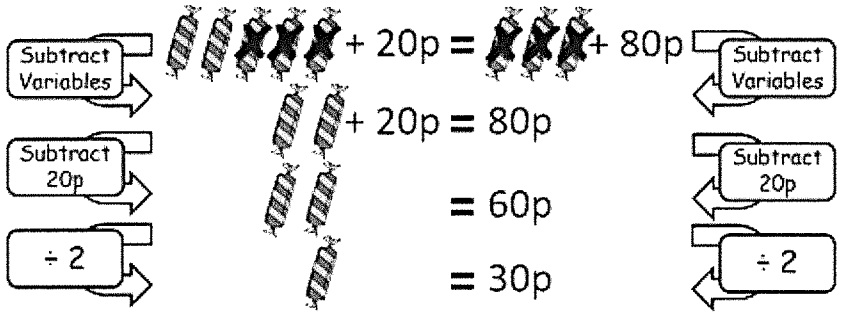
$x + 8 = 14$ (− 8 / − 8)

$x = 6$

$4x = 20$ (÷ 4 / ÷ 4)

$x = 5$

Solving Two Step Equations



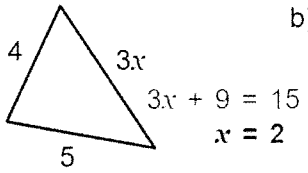
$$5x + 9 = 29$$
$$-9 \quad -9$$
$$5x = 20$$
$$\div 5 \quad \div 5$$
$$x = 4$$

$$\frac{x}{3} + 4 = 9$$
$$-4 \quad -4$$
$$\frac{x}{3} = 5$$
$$\times 3 \quad \times 3$$
$$x = 15$$

Forming and Solving Equations

For each diagram, write an equation and solve it to find the value of x.

a)

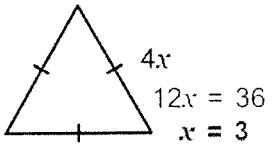


$3x + 9 = 15$

$x = 2$

Perimeter = 15

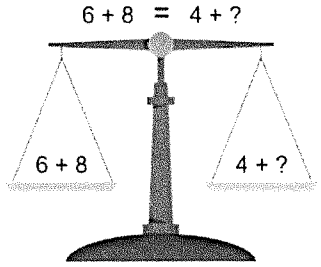
b)



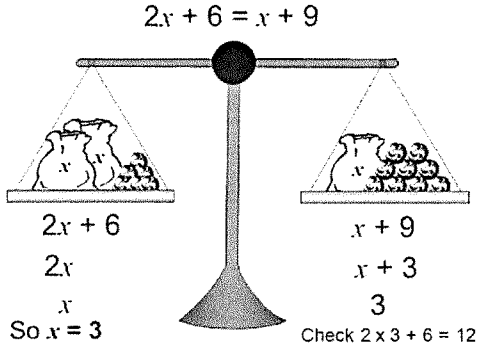
$12x = 36$

$x = 3$

Perimeter = 36



SINCE 6 + 8 = 14, IN ORDER FOR THE SCALE TO BE BALANCED, THE LEFT PLATE HAS TO BE 4 + 10 = 14. (? = 10)



$2x + 6$

$2x$

x

So $x = 3$

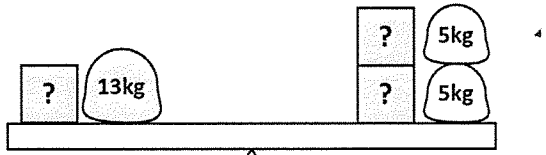
$x + 9$

$x + 3$

3

Check 2 x 3 + 6 = 12 = 6 + 3✓

Variables on Both Sides



$x + 13 = 2x + 10$

Take away one x from both sides.

$13 = x + 10$

Take away 10 from both sides.

$3 = x$

Check with substitution!

Solving with Brackets

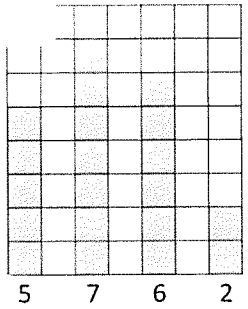
$$4(x + 3) = x + 18$$

Expand any brackets.

$$4x + 12 = x + 18$$
$$-x \quad -x$$
$$3x + 12 = 18$$
$$-12 \quad -12$$
$$2x = 6$$
$$\div 2 \quad \div 2$$
$$x = 3$$

Average: a value that is calculated to represent the central value of the data.

Mean = $\frac{\text{sum of all values}}{\text{total number of values}}$



5 7 6 2

Total: 5 + 7 + 6 + 2 = 20

Mean: 20 ÷ 4 = 5

The **median** is the middle value (when the numbers are put in order).

4 7 8 10 25

ascending order?

choose middle value

Median = 8

2 middle values → take their mean

The **mode** is the value which appears the most (there can be more than one mode).

Use the mode to describe these sets of numbers. Mode = 6

1, 6, 8, 12, 19, 6, 2, 5

5cm, 8cm, 2cm, 7c
2cm, 9cm, 8cm, 4c

2 & 8 bimodal

The **range** is the largest value minus the smallest value. Be careful when working with negative numbers.

Calculate the range for this set of numbers.

3.2, −2.5, 5.1,
−0.7, 5.7, −2.2, 4.6

−2.5 to 5.7 = 8.2

How many times did the team score 2 goals? 4

How many games did the team play in total? 5+3+4+2+1 = 15

How many goals did the team score in total? 0+3+8+6+4 = 21

What is the mean number of goals the team scored per match? $\frac{21}{15} = 1.4$

Tables are used to display data clearly. **Frequency** means how often a value shows up in a data set.

10 10 10 10
11 11 11 11 11 11
12 12 12
13 13

Age	Frequency
10	4
11	6
12	3
13	2

Score	Tally	Frequency
1 - 10	|	1
11 - 20	𝍸	5
21 - 30	𝍸 𝍸	10
31 - 40	𝍸	5

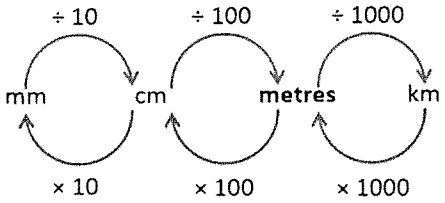
When there is lots of data, you can **group** it together. These are called **grouped frequency tables.**

The Metric System

This is a system designed to make it easy to measure any real-life quantity.
Units are in multiples of 10 of a **base unit**.

Distance

millimetre — 1/10 of a centimetre
centimetre — 1/100 of a metre
metre
kilometre — 1000 metres



Converting Metric Units

10 millimetres = 1 centimetre

100 centimetres = 1 metre

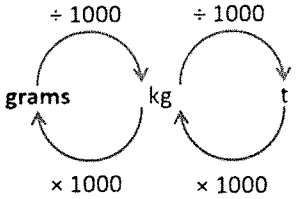
1000 metres = 1 kilometre

Which of these could be the height of a house?

a) 8cm b) 8kg c) 8m d) 8g

Mass

milligram — 1/1000 of a gram
gram
kilogram — 1000 grams
tonne — 1000 kilograms



1000 grams = 1 kilogram

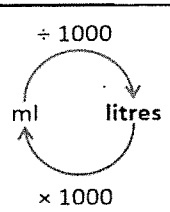
1000 kilograms = 1 tonne

Which of these could be the weight of an apple?

a) 7.8g b) 78g c) 780g d) 7.8kg

Capacity

millilitre — 1/1000 of a litre
centilitre — 1/100 of a litre
litre



1000 millilitres = 1 litre

Which of these might be the capacity of a can of cola?

a) 3*ml* b) 30*ml* c) 300*ml* d) 3 *litres*

In the past, people in the UK and Ireland would traditionally have used the **imperial system of measurement**. Despite being seen as quite old fashioned now, a lot of the measures listed below (and their abbreviations) are still commonly used today and are still the main system for America.

Weight	**Volume**	**Length**
ounces (oz)	teaspoon (tsp)	inches (in or ')
pounds (lbs)	cups	feet (ft or ")
tonnes (tn)	pints (pt)	yards (yd)
	gallons (gl)	miles (ml)

You can convert between Metric and Imperial Measures. It will help if you can memorise these conversions.

Metric	Imperial
1 kg	2.2 pounds
1 litre	1.75 pints
30 cm litre	1 foot
30 cm	12 inches
km	miles
8 km	5 miles

Here is a conversion table for miles and kilometres

Miles	Kilometres
1	1.6
5	8
10	16
20	32

(a) Use the table to convert 100 miles to kilometres.

160 km (1)

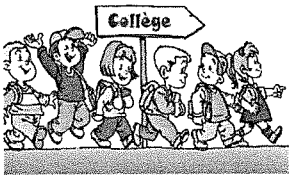
(b) Use the table to convert 36 miles to kilometres.

36 = 20 + 10 + 5 + 1

1.6 + 8 + 16 + 32 = 57.6 km (2)

Half-term 3 – talking about school

Vocab book pages 7-8



Quiz 3.1– School subjects and timetable

At school, I have Maths and English.	Au collège j'ai les maths et l'anglais.
I have a lesson of art with Mrs Harris.	J'ai un cours de dessin avec Madame Harris.
At 9 o'clock, I have music.	À neuf heures, j'ai la musique.
At 10 o'clock, it's **break time.**	A dix heures, c'est **la récré.**
I have science with Mr Hall.	J'ai les sciences avec Monsieur Hall.
We have **lots of** subjects.	Nous avons **beaucoup de** matières.

Quiz 3.2 – Giving and justifying opinions on subjects

I like History **because** it's great.	J'aime l'histoire **parce que** c'est génial.
I love Science **because** it's interesting and practical.	J'aime les sciences **parce que** c'est intéressant et pratique.
I hate Technology **because** it's **quite** boring.	Je déteste la technologie **car** c'est **assez** barbant.
My favourite subject is music.	Ma matière préférée, c'est la musique.
I don't like PE **because** it's **very** difficult.	Je n'aime pas le sport car c'est **très** difficile.
I like History **because** it's great.	J'aime l'histoire **parce que** c'est génial.

Quiz 3.3 – Talking about school uniform

At school **I wear** a uniform.	Au collège **je porte** un uniforme scolaire.
At school, **I wear** grey trousers.	Au collège **je porte** un pantalon gris.
On Mondays I wear a t-shirt for PE.	Le lundi, je porte un tee-shirt pour le sport.
I wear a white blouse and a red tie.	Je porte une chemise blanche et une cravate rouge.

Quiz 3.4 – Describing your school

At school, **there is** a canteen.	Au collège **il y a** une cantine.
There are **also** a sports field and a pool.	Il y a **aussi** un terrain de sport et une piscine.
There are lots of classrooms.	Il y a beaucoup de salles de classe.
Unfortunately, I have lots of homework.	Malheureusement, j'ai beaucoup de devoirs.
We have strict teachers.	**Nous avons** des profs stricts.

End of half-term checklist			
I can...	☹	😐	☺
describe my timetable			
say what subjects I like and don't like			
explain my opinions on subjects			
describe my school uniform			
talk about my school day			
recall differences between French and English schools			

Parallel texts

Vous écrivez un émail à votre correspondant(e) français(e) au sujet du collège. Mentionnez:

- **votre emploi du temps.** *Your timetable.*
- **les matières que vous aimez et n'aimez pas.** *The subjects you like and don't like.*
- **votre uniforme.** *Your uniform*
- **une description de votre collège.** *A description of your school.*
-

Écrivez **90 mots** en français (write **90 words** in French)

At school, I have lots of subjects, including Maths, English and Science. On Monday **at 9am** I have Maths with Mr Wan and at 10am I have English with Mrs Clifford. I have science in the afternoon. **Let's be honest,** I like art **because** it's creative and fun and I love French **because** it's **very** interesting, however I don't like music **because** it's **too** difficult. My favourite subject is technology. At school, I wear a uniform and I don't like **that**! I wear grey trousers and a white blouse with a Red tie – it's horrible! I would like to wear jeans. At school, there is a canteen and a sports field. **In addition**, there is a library and lots of rooms of class. In my opinion, it's fantastic! **Unfortunately** there isn't a swimming pool or cinema. We have also homework and strict teachers.	Au collège, j'ai beaucoup de matières, y compris les maths, l'anglais et les sciences. Le lundi **à neuf heures,** j'ai les maths avec Monsieur Wan et à dix heures j'ai l'anglais avec Madame Clifford. J'ai les sciences l'après-midi. **Soyons honnêtes,** j'aime le dessin **parce que** c'est créatif et amusant et j'adore le français **vu que** c'est **très** intéressant, cependant je n'aime pas la musique **car** c'est **trop** difficile. Ma matière préférée est la technologie. Au collège, je porte un uniforme et je n'aime pas **ça**! Je porte un pantalon gris et une chemise blanche avec une cravate rouge – c'est horrible! Je voudrais porter un jean. Au collège, il y a une cantine et un terrain de sport. **En plus,** il y a une biblothèque et beaucoup de salles de classe. À mon avis, c'est fantastique! **Malheureusement,** il n'y a pas de piscine ou de cinema. Nous avons aussi des devoirs et des profs stricts.
At school, I have lots of subjects, including Maths, English and Science. On Monday at 9am I have Maths with Mr Wan and at 10am I have English with Mrs Clifford. I have science in the afternoon. **Let's be honest,** I like art **because** it's creative and fun and I love French **because** it's **very** interesting, however I don't like music **because** it's **too** difficult. My favourite subject is technology. At school, I wear a uniform and I don't like **that**! I wear grey trousers and a white blouse with a Red tie – it's horrible! I would like to wear jeans. At school, there is a canteen and a sports field. **In addition**, there is a library and lots of rooms of class. In my opinion, it's fantastic! **Unfortunately** there isn't a swimming pool or cinema. We have also homework and strict teachers.	Au collège, j'ai beaucoup de matières, y compris les maths, l'anglais et les sciences. Le lundi à neuf heures, j'ai les maths avec Monsieur Wan et à dix heures j'ai l'anglais avec Madame Clifford. J'ai les sciences l'après-midi. **Soyons honnêtes,** j'aime le dessin **parce que** c'est créatif et amusant et j'adore le français **vu que** c'est **très** intéressant, cependant je n'aime pas la musique **car** c'est **trop** difficile. Ma matière préférée est la technologie. Au collège, je porte un uniforme et je n'aime pas **ça**! Je porte un pantalon gris et une chemise blanche avec une cravate rouge – c'est horrible! Je voudrais porter un jean. Au collège, il y a une cantine et un terrain de sport. **En plus,** il y a une biblothèque et beaucoup de salles de classe. À mon avis, c'est fantastique! **Malheureusement,** il n'y a pas de piscine ou de cinema. Nous avons aussi des devoirs et des profs stricts.

Key skills

1. Confidently communicate opinions school subjects in speaking and writing
2. Justify opinions with 'because' connectives
3. Answer comprehension questions in English through listening and reading
4. Use a range of negatives
5. recall a wide range of cross-contextual vocabulary

Half term 4 – Talking about hobbies

Vocab book page 9

Quiz 4.1 – Hobbies and time phrases

At the weekend, I play football.	Le weekend, je joue au foot.
In the morning, I listen to music.	Le matin, j'écoute de la musique.
In the evening, I watch TV.	Le soir, je regarde la télé.
In the afternoon, I do my homework.	L'après-midi, je fais mes devoirs.
I visit my friends every day.	Je visite mes copains tous les jours.

Quiz 4.2 – Saying where you do your hobbies

I play rugby at the park.	Je joue au rugby au parc.
I watch a film at the cinema.	Je regarde un film au cinema.
I would like to do shopping in town.	Je voudrais faire du shopping en ville.
Normally, I do my homework **at my house.**	Normalement, je fais mes devoirs **chez moi**.
In the afternoon, I do swimming at the pool.	L'après-midi, je fais de la natation à la piscine.

Quiz 4.3 – Infinitives with hobbies

I like to play football because it's fun.	J'aime jouer au foot car c'est amusant.
I don't like to do horse riding.	Je n'aime pas faire de l'équitation.
I love watching a film at my house because it's relaxing.	J'adore regarder un film chez moi car c'est relaxant.
I can listen to music with my friends.	**Je peux** écouter de la musique avec mes copains.
I can't eat a pizza in town.	**Je ne peux pas** manger une pizza en ville.

End of half-term checklist			
I can...	☹	😐	☺
Recall at least 10 different hobbies			
Give my opinions on hobbies			
Explain my opinions on hobbies			
Say where and when I do hobbies			

Parallel texts

At the weekend, I do lots of activities. On Saturday morning, I play tennis with my friends	Le weekend, je fais beaucoup d'activités.

and I go into town where I do shopping. I love doing shopping because it's **extremely** fun. Normally, on Sundays, I go to the cinema and I watch a film with my family. I eat a pizza in a restaurant and it's great. In the evening, I chat with my friends on my phone and I listen to music because it's really relaxing **in my opinion**. **After school**, I watch TV because it's interesting. However I don't like to do my homework because it's quite boring and rubbish.	Le samedi matin, je joue au tennis avec mes copains et je vais en ville où je fais du shopping. J'adore faire du shopping car c'est **extrêmement** amusant. Normalement, le dimanche, je vais au cinéma et je regarde un film avec ma famille. Je mange une pizza et c'est genial. Le soir, je chatte avec mes copains sur mon portable et j'écoute de la musique car c'est vraiment relaxant **à mon avis**. **Après le collège**, je regarde la télé car c'est intéressant. Cependant, je n'aime pas faire mes devoirs car c'est assez barbant et nul.
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Key skills

1. Confidently communicate about hobbies in speaking and writing
2. Justify opinions with 'because' connectives
3. Answer comprehension questions in English and French through listening and reading
4. Use infinitive constructions
5. recall a wide range of cross-contextual vocabulary

1. Living and Non-Living

7 life processes something has to be able to do to be classified as being 'living'

M - Movement
R - Respiration
S - Sensitivity
G - Growth
R - Reproduction
E - Excretion
N – Nutrition

2. Classification of Living Organisms

Species – A group of organisms that can breed with each other to form fertile offspring.

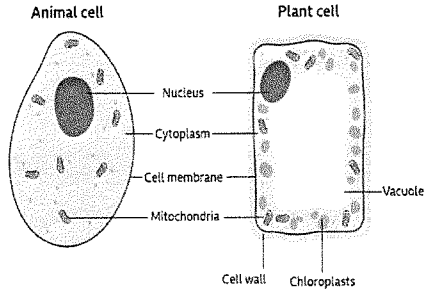
Kingdoms – Animal, Plant, Fungi, Prokaryotes and Protocists

Vertebrates - Animals with backbones.
Invertebrates – Animal without backbones.

3. Cell Structure

IN ANIMAL AND PLANT CELLS	
Structure	Function
Cytoplasm	Where chemical reactions take place.
Nucleus	Contains genetic material and controls cell activities.
Cell membrane	Controls the movement of substances into and out of the cell.
Ribosome	Site of protein synthesis.
Mitochondrion	Site of respiration, where energy is released.

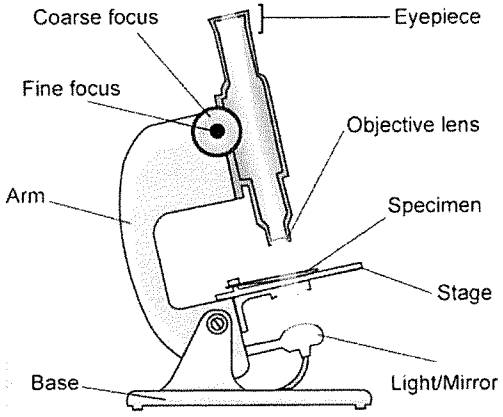
IN PLANTS CELLS ONLY	
Permanent Vacuole	Contains cell sap, to keep the cell turgid.
Cell wall	Supports and strengthens the cell (made of cellulose).
Chloroplast	Site of photosynthesis. Contain chlorophyll, which absorbs sunlight.



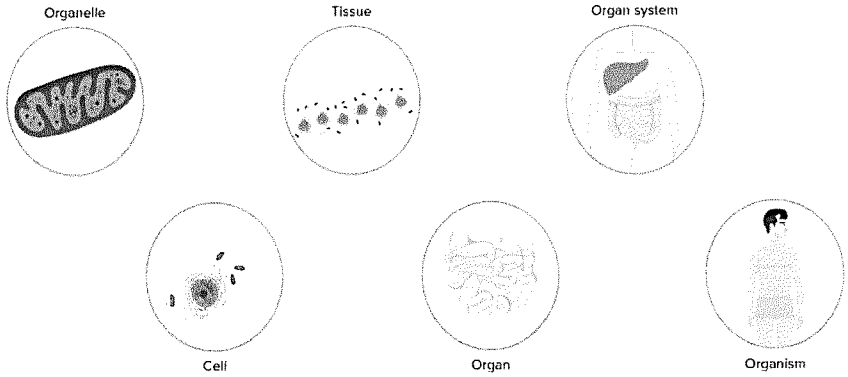
4. Types of Cells

TYPE OF CELL	FUNCTION
Sperm cell	Carries the fathers' DNA in nucleus
Red blood cell	Carries oxygen around the body
Nerve cell	Carries electrical impulses around body
Root hair cell (plant cell)	Absorb water and minerals from the soil.
Egg cell	Carries the mothers' DNA in the nucleus
Palisade cell (plant cell)	Carry out photosynthesis. Found in leaves, contain chloroplasts.

5. Microscopes

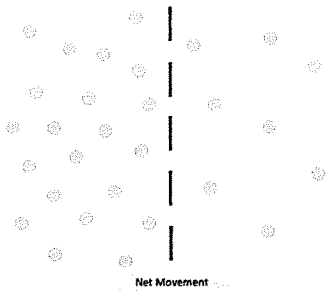


6. Systems



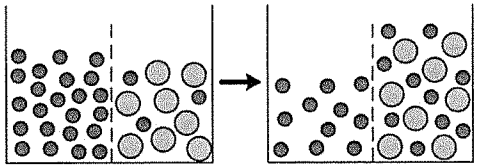
7. Cell Transport - Diffusion

Diffusion is the movement of a substance from an
area of higher concentration to an
area of lower concentration.



8. Cell Transport – Osmosis

Movement of water particles from an area of higher water concentration to lower water concentration, across a partially permeable membrane.



9. Respiration

Aerobic respiration requires oxygen.
Aerobic respiration occurs in the mitochondria.
The word equation is Glucose + Oxygen → Carbon dioxide + Water
Anaerobic respiration occurs when there is not enough oxygen. Anaerobic respiration is less efficient than aerobic respiration (releases less energy).
In humans, the equation for anaerobic respiration is
glucose →Lactic acid
Lactic acid causes muscle cramp

10. Fermentation and Anaerobic Respiration

Anaerobic respiration in plants and yeast produces ethanol and carbon dioxide which can be used for baking and brewing. The word equation in plants is Glucose → ethanol + carbon dioxide

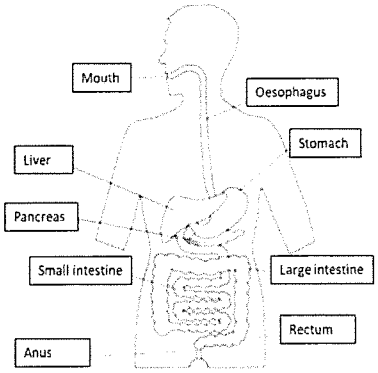
11. Balanced Diet and Deficiency

Food group	**Why do we need this food group in our diet?**
Carbohydrates	Gives us **energy.**
Lipids (fats and oils)	**stores energy** in the body and **insulates** us against the cold.
Proteins	For **growth** and **repair.**
Vitamins and minerals	Needed in small amounts to maintain **health.**
Fibre	To provide **roughage** to help to keep the food moving through the digestive system.
Water	Needed for **cells** and body fluids.

12. Food Test

Food group:	**Food test:**	**Positive sample:**
Starch	Iodine solution	From brown to blue-black
Glucose	Benedict's solution and heated in water bath	From blue to brick red
Protein	Biuret solution	From blue to lilac(purple)
Fat	Ethanol	Goes cloudy

13. Digestive System Structure and Function



Rectum	**Stores faeces.**
Anus	Where **faeces** is released.

Mouth	**Teeth** chew up food into smaller pieces. **Saliva** is added, which digests **starch.**
Oesophagus	Food moves down into the stomach, pushed along by the contractions of the muscular walls. (peristalsis)
Stomach	Stomach walls churn up food further and **digestive juices** and **stomach acid** are added.
Liver	**Bile** is **produced** here. Bile helps to digest fats.
Gall bladder	**Bile**, which is produced in the liver, is **stored** here.
Pancreas	Produces digestive **enzymes** .
Small intestine	**Nutrients** diffuse from the small intestine into the blood stream.
Large intestine	Excess water is re-absorbed into the body. Left behind is waste which cannot be digested.

Year 7 - C2 - Reactions

1. Acids Alkalis & pH Scale

An acid is a solution that has a pH of less than 7.
An alkali is a solution that has a pH of more than 7.

Red			Yellow				Green	Blue				Purple		
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Strong acid			Weak acid				Neutral	Weak alkaline				Strong alkaline		

An indicator is a chemical that changes colour in acids and alkalis
Universal Indicator: measures the approximate **pH** of a solution, using the pH scale.
Litmus paper: Used to identify whether a solution is alkaline or acidic but **does not** provide a pH.

2. Key Definitions

pH: Scale of acidity and alkalinity from 0 to 14.

Acid: A substance that neutralises an alkali

Base: A substance that neutralises an acid – those that dissolve in water are called **alkalis**.

Concentration: A measure of the number of particles in a given volume.

Neutralisation: A reaction between an acid and an alkali, which produces salt and water.

Indicator: A solution which changes colour to indicate whether a substance is acidic or alkaline.

3. Physical and Chemical Changes

Physical changes. This is when the physical properties change such as changing state. Evaporation melting and boiling are examples. The change is reversible (it can easily go back to what it was before).

Chemical changes This is when the chemical properties change. A new substance is made. Example two elements chemically combine to form a compound. This is usually irreversible (cannot be changed back). When this happens we call it a chemical reaction.

4. How to Write an Equation

Reactant + Reactant → Product + Product

The elements / compounds that are reacting together are written on the left-hand side of the equation.

The elements / compounds that are reacting together are written on the right-hand side of the equation.

When a metal and a non-metal react, the ending of the non-metal turns to **ide.**

E.g. Magnesium + oxygen → Magnesium Oxide

Sodium + Chlorine → Sodium Chloride

5. Law of Conservation of Mass

Conservation of mass: Mass of Reactants = Mass of Products.

Mass cannot be created or destroyed.

Sodium	+	Chlorine	→	Sodium Chloride
23g		35g		58g

Some chemical reactions appear to not appear to follow the law of conservation of mass but this is usually due to a gas being released.

Eg. Zinc	+	Hydrochloric acid	→	Zinc	+	Hydrogen
65g		36g		99g		2g

6. Endothermic and Exothermic Reactions

Exothermic = Energy is transferred from the chemical reaction to the surroundings. It feels hotter.

Temperature in a chemical reaction increases.

Examples: Combustion (Burning) of fuels, handwarmers.

Endothermic = Energy is transferred from the surroundings to the chemical reaction. It feels colder.

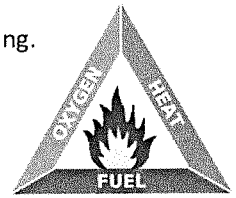
Temperature in a chemical reaction decreases.

Examples: Instant ice-packs.

Year 7 - C2 - Reactions

7. Combustion

Combustion is the scientific name for burning.



The three requirements are: fuel, oxygen and heat. If one of these factors is missing combustion will not take place.

Combustion of fuels release energy – it is an exothermic reaction.

When a fuel is burnt in plentiful oxygen carbon dioxide and water is released.

Fuel + oxygen → carbon dioxide + water

8. Neutralisation

9. Reactivity Series

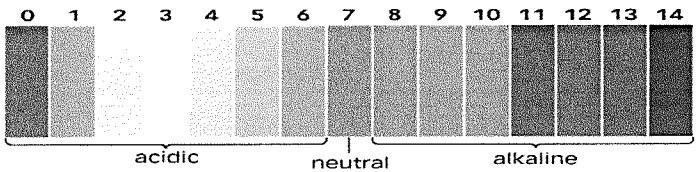
10. Metals and Acids

11. Metal Carbonates and Acids

12. Changing Concentration of Acids

Y7 C2 absolute

1.



- pH 0 is a strong acid.
-pH 6 is a weak acid.
-pH 14 is strong alkali
-pH 7 is Neutral

An indicator is a chemical that changes colour in acids and alkalis
Universal Indicator: measures the approximate **pH** of a solution, using the pH scale.
Litmus paper: Used to identify whether a solution is alkaline or acidic but **does not** provide a pH.

2. key definitions
pH: Scale of acidity and alkalinity from 0 to 14.
Acid: A substance that neutralises an alkali
Base: A substance that neutralises an acid – those that dissolve in water are called **alkalis**.
Concentration: A measure of the number of particles in a given volume.
Neutralisation: A reaction between an acid and an alkali, which produces salt and water.

5 Word Equations
A chemical reaction can be summarised using a word equation: sulfur + oxygen → sulfur dioxide
This shows that: sulfur and oxygen are the **reactants** and sulfur dioxide is the **product**
Symbol equations
In a symbol equation, the names of substances are replaced by symbols and formulae:
$S + O_2 \rightarrow SO_2$.

4. Physical changes. This is when the physical properties change such as changing state. Evaporation melting and boiling are examples. The change is reversible (it can easily go back to what is was before).
Chemical changes This is when the chemical properties change. A new substance is made. Example two elements chemically combine to form a compound. This is usually irreversible (cannot be changed back). When this happens we call it a chemical reaction.

7.
The **reactivity series** is a list of elements from the most reactive to the least reactive. The more reactive an element is, the more quickly the reaction will take place.

Displacement reactions can be used to determine how reactive an element is. In a displacement reaction, a more reactive element takes the place of a less reactive one.

6
Conservation of Mass – Mass cannot be created or destroyed only transferred into different forms

Exothermic – A reaction that transfers heat to the surroundings so the temperature of the surroundings increases

Endothermic – A reaction that transfers heat from the surroundings into the reaction so the temperature decreases

Combustion reactions -Combustion is another name for burning. It is an example of an exothermic reaction. Heat, a fuel and oxygen are needed for combustion.

Neutralisation A reaction between an acid and an alkali, which produces salt and water. Sulfuric acid makes sulphate salts. Nitric acid makes nitrate salts and hydrochloric acid makes chloride salts

Salt name given to a compound made when an acid reacts with an alkali, example magnesium nitrate.

8.Metals and acid reactions
Metal + acid → metal salt + hydrogen
E.g. $Zn + 2HCl \rightarrow ZnCl_2 + H_2$
Zinc + hydrochloric acid → zinc chloride + hydrogen

We can prove hydrogen is produced in this reaction by using a lit splint and it would make a squeaky pop noise if hydrogen gas is present

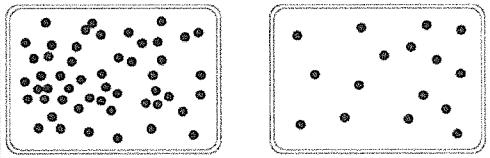
9.Metal carbonate and acid reactions:
Metal carbonate + acid → metal salt + carbon dioxide + water

Sodium carbonate + hydrochloric acid → sodium chloride + carbon dioxide + water

E.g. $Na_2CO_3 + 2HCl \rightarrow 2NaCl + CO_2 + H_2O$

We can prove carbon dioxide is produced by collecting the gas and adding limewater. If limewater goes cloudy, the gas is present

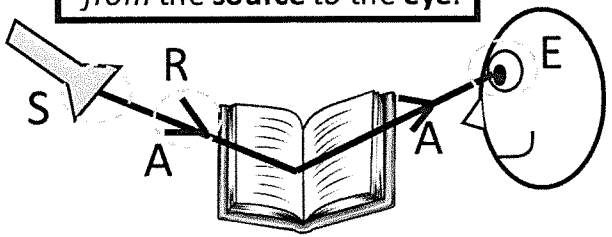
10. Concentration of acid



Year 7 – **Light** and Space

1 – Ray Diagrams

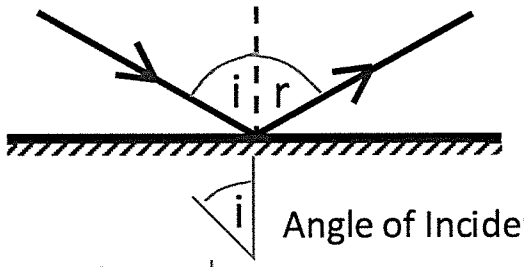
Light travels in **straight lines** *from* the **source** *to* the **eye**.



Ruler **A**rrow **S**ource **E**ye

Luminous objects can be seen because they produce their own light.
E.g. Phone screen, stars, candle, light bulb
Non-Luminous objects can be seen when they *reflect* light from another source.
E.g. Person, book, moon

2 – Reflection



i Angle of Incidence

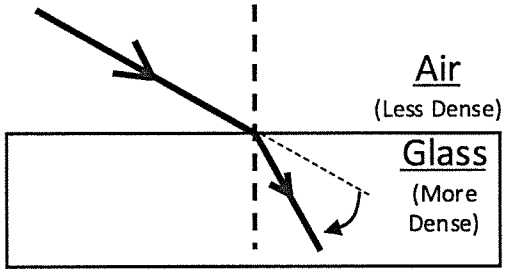
Normal Line (line at 90° to the boundary)

r Angle of Reflection

Rule of Reflection

The angle of incidence is **always** equal to the angle of reflection

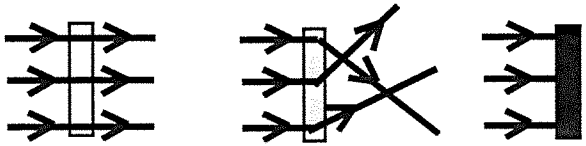
3 – Refraction



Light changes speed which causes it to change direction (refract).

If light moves from a less dense to a more dense material, it will slow down and refract TOWARDS the normal

4 – Materials and Light



Transparent
Transmits Light
You can see through it.
E.g. Glass

Translucent
Transmits and scatters light.
You can not see through it.
E.g. Tracing paper

Opaque
Does not transmit light
You can not see through it.
E.g. Wood

When light hits a surface, it can be:

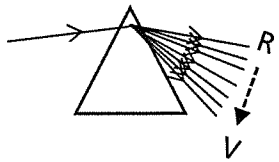
Reflected **Scattered** **Absorbed**

5 – Colour and Filters

White Light Contains

R	O	Y	G	B	I	V
e	r	e	r	l	n	i
d	a	l	e	u	d	o
	n	l	e	e	i	l
	g	o	n		g	e
	e	w			o	t

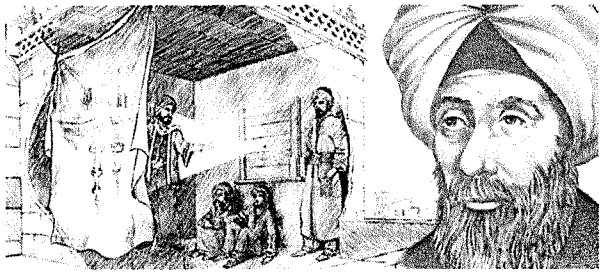
White Light can be split with a Prism



Coloured Objects REFLECT light that is the same as the object's colour and ABSORB all other colours

Coloured Filters TRANSMIT light that is the same as the filter's colour and ABSORB all other colours

6 – Know Your Scientists!



Ibn al-Haytham (965-1040)

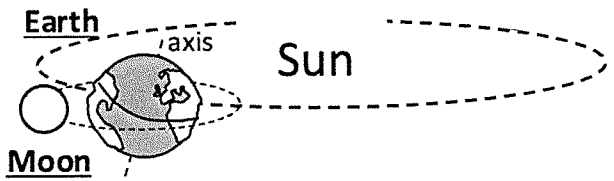
al-Haytham was born in Iraq during the "Islamic Golden Age". He is known for:

- Discovering how we see
- Developing an early camera
- Developing the "Scientific Method"

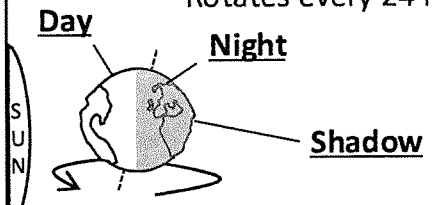
Year 7 – Light and **Space**

1 – Sun, Earth and Moon

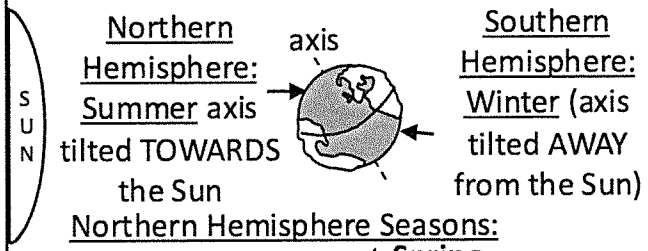
Orbit *path an object travels around another*
Axis *Imaginary line an object spins around*



Moon – Orbits Earth every 28 Days (Month)
Earth – Orbits Sun every 365 ¼ days (Year)
– Rotates every 24 hours (Day)



2 – Seasons



In winter: Sunlight is spread over a larger area, so it is colder. We spend more time in the shadow, so days are shorter.

3 – The Moon

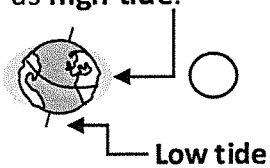
We see the moon differently at different parts of its orbit. The different shapes are called the *phases* of the moon

New
Crescent
half
Gibbous
Full

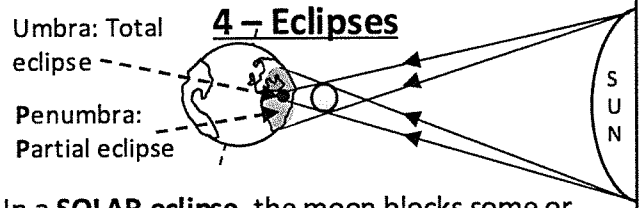
Waxing: moon getting fatter
Waning: moon getting thinner

Tides

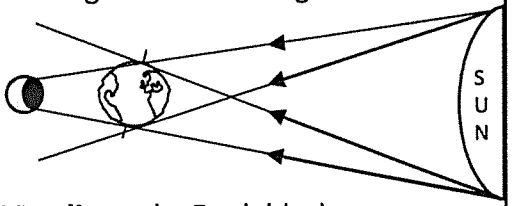
The moon's gravitational field pulls the water on Earth towards it. This causes the oceans to "bulge". This is experienced as **high tide**.



4 – Eclipses



In a **SOLAR eclipse**, the moon blocks some or all of the Sun's light from reaching the Earth



In a **LUNAR eclipse**, the Earth blocks some or all of the Sun's light from reaching the moon.

When drawing solar eclipse diagrams:
2 Rays from top of sun to top & bottom of moon.
2 Rays from bottom of sun to top and bottom of moon

5 – Solar System

Star: The Sun

Planets:
- Mercury
- Venus
- Earth
- Mars

Inner Planets (Rocky)

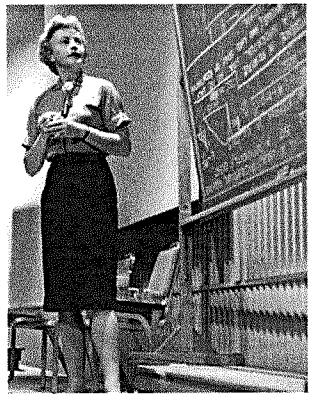
- Jupiter
- Saturn
- Uranus
- Neptune

Outer Planets (Gas Giants)

Moons:
- The Moon (Earth)
- Calisto (Jupiter)
- Titan (Saturn

Our Solar System is one of hundreds of billions in our GALAXY (The Milky Way)

6 – Know Your Scientists!



Margaret Burbidge (1919-2020)

Burbidge was an astronomer who studied Stars. She discovered that all elements are created inside stars.

She was made Director of the Royal Greenwich Observatory in 1973 and awarded the "Albert Einstein World Award of Science" in 1988.

Y7 Food Preparation and Nutrition – Knowledge Absolute

Safety Rules

- Always walk
- Carry a knife by the handle, pointing down at the side of your leg
- Turn pan handles in
- Use oven gloves and wooden triangles

8 tips for healthier eating

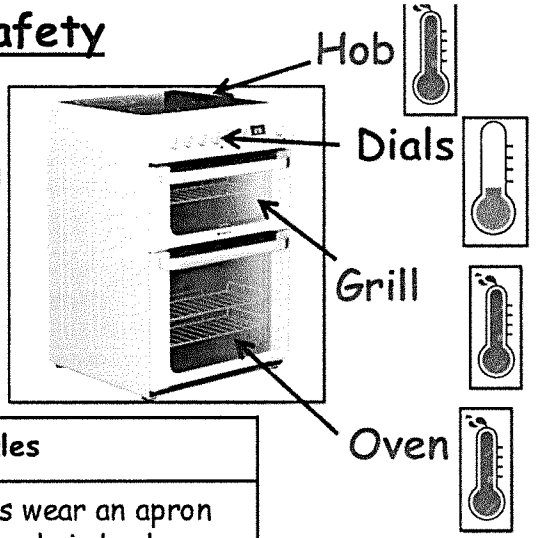
These eight practical tips cover the basics of healthy eating, and can help you make healthier choices.

1. Base your meals on starchy carbohydrates.
2. Eat lots of fruit and veg.
3. Eat more fish – including a portion of oily fish.
4. Cut down on saturated fat and sugar.
5. Eat less salt (max. 6g a day for adults).
6. Get active and be a healthy weight.
7. Don't get thirsty.
8. Don't skip breakfast.

Food Science term	Definition
Dextrinisation	The browning of starch
Shortening	Stopping the gluten strands from stretching
Denaturation	When the structure of a food containing protein is altered by heat, chemical or mechanical action
Caramelisation	When sugar turns brown

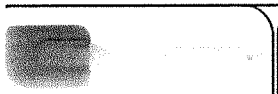
Ingredient	Function
Flour	Bulk out products like muffins and scones. To dextrinise in scones and muffins
Egg	To bind ingredients together in muffins and scones.
Butter	To shorten scones and biscuits
Sugar	To sweeten sweet products. To caramelise in biscuits and cakes

Cooker Safety



Hygiene Rules

- Always wear an apron
- Tie long hair back
- Remove nail varnish
- Remove jewellery
- Wash pots in hot soapy water


Name: Spatula
Use: Scraping bowls


Name: Sharp knife
Use: Cutting vegetables


Name: Saucepan
Use: Boil or simmer food


Name: Tablespoon
Use: For measuring


Name: Mixing Bowl
Use: Mixing ingredients together


Name: Teaspoon
Use: Measuring ingredients


Name: Measuring jug
Use: To measure liquids


Name: Fish slice
Use: To lift products off baking trays


Name: Spatula
Use: To scrape mixture out of bowls

Always use the correct knife techniques.

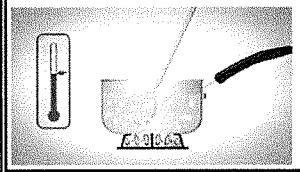
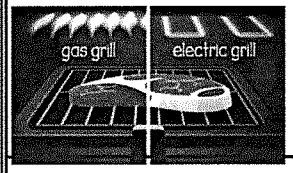
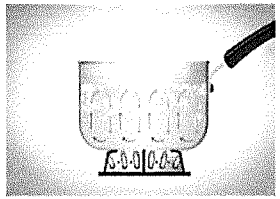

Bridge


Claw

Rubbing in= incorporating butter into flour using fingertips

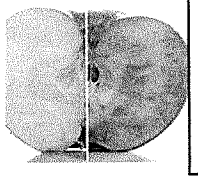
Key Terms

Combine: To mix 2 or more things together
Hygiene: Cleanliness
Bacteria: germs
Organoleptic: involving the use of sense organs
Function: what something does
Provenance: where food comes from
Nutrient: Provides nourishment for the body
Dextrinisation: Browning of starch by dry heat
Coagulation: When a mixture sets
Sensory test: using sense organs to evaluate food
Enzymic: Action of enzymes
Carbon Footprint: Amount of carbon dioxide something releases into the environment
Greenhouse Gas : emissions that are harmful to the planet
Bridge and claw: knife holds
Quality Control: measures put into place to ensure uniformity

Image	Method of Heat Transfer and explanation	Example of food cooked using this method
	Conduction – Transfer of heat through the vibration of the particles. When the particles collide they pass on some energy.	Pasta Roast Beef Pizza
	Radiation - Transfer of heat energy through waves of radiation. No direct contact between the food and heat source. When the waves of radiation reach food they are absorbed and heat up the food.	Toast Grill meat or fish
	Convection – Transfer of heat energy through gases or liquids. When you heat the liquid the part near the heat source heats up first. The warmer liquid rises and cooler liquid falls. This circulation continues until all the liquid is heated. Convection also happens in ovens.	Pasta Rice Boiling vegetables

Four C	Description	Examples
Cleaning	Ensuring you clean yourself and your work area to prevent bacteria growth.	Wash your hands Wipe surfaces Wash all equipment
Cooking	Ensure food is cooked thoroughly to at least 72c in the centre.	Cooking meat until juices run clear
Chilling	Keep all food stored correctly, if it needs to be chilled keep in a fridge.	Keep chilled food in a fridge like cheese, milk and chicken.
Cross-Contamination	Ensure raw and cooked food are kept apart.	Use separate chopping boards and utensils for raw and cooked food. Keep raw food at the bottom of the fridge

Bacteria	Source	Symptoms
Salmonella	Raw meat, poultry, eggs, milk, dairy products	Diarrhoea, vomiting, fever & headache, abdominal pain
Listeria	Pasteurised and raw milk, cheese, soft ice cream, raw vegetables, raw meat	Flu like symptoms, nausea, vomiting, diarrhoea, may cause abortion, still birth, meningitis, septicemia.
Staphylococcus Aureus	Meat, meat products, poultry, nose and throat of humans	Vomiting, abdominal pain, diarrhoea
E-Coli	Sewage, soft cheese, minced beef and chicken	Diarrhoea, abdominal pain, nausea
Camplyobacter	Meat, poultry, raw milk, untreated water, chickens	Diarrhoea, flu like symptoms, headache, fever, abdominal pain
Bacillus Cerus	Rice, cereal products and starchy foods i.e. potatoes.	Diarrhoea, abdominal pain, nausea

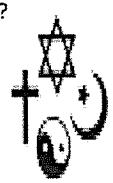


Enzymatic Browning
When fruits containing **polyphenol oxidase** are exposed to oxygen they go brown. This includes fruits like apples and bananas. This is enzymatic browning.
Grating or bruising the fruit speeds this up and adding acid like lemon juice or blanching the food slows it down.

How to write a hypothesis
- ✓ A hypothesis is what you think you will prove e.g. I think that the best sauce will be contain plain flour .
- ✓ It is clear and to the point
- ✓ No more than two sentences

How to conduct a fair test
- ✓ Always have a control to compare the samples to
- ✓ Only change one thing in each sample so you know what is effecting the sample
- ✓ Always use sample codes to prevent bias
- ✓ Use a variety of testers

Why do we choose the foods we eat?
- ✓ Cost
- ✓ Culture/religion
- ✓ Seasons
- ✓ Medical issues
- ✓ Marketing/advertising
- ✓ Ethics



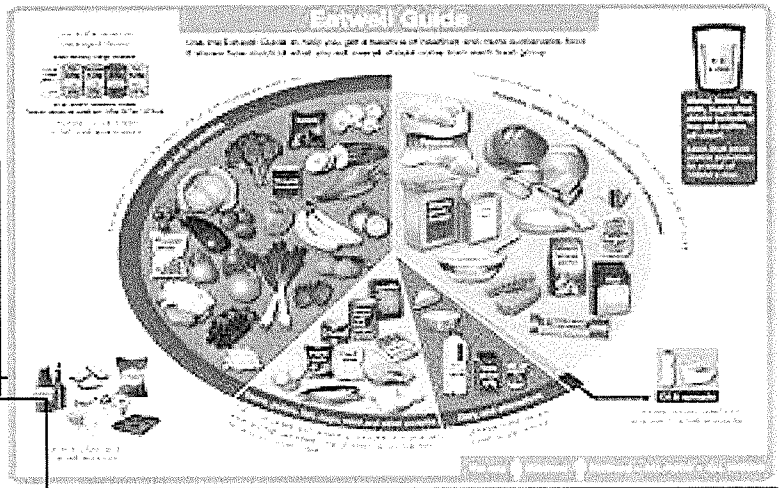
Seasonal food
- ✓ Reduces food miles and environmental
- ✓ impact
- ✓ Costs less
- ✓ Supports local producers
- ✓ Taste and looks better/fresher

Organic food
- ✓ Can be of a higher quality
- ✓ Can taste better
- ✓ More ethical
- ✓ Less environmental impact
- ✓ More sustainable
- ✓ Can be expensive

Fairtrade - Supports farmers in developing countries by offering better prices and better working conditions. Products such as: bananas,

How to save money when buying food
- ✓ Compare prices
- ✓ Buy food seasonally/locally
- ✓ Use coupons or offers
- ✓ Plan your meals
- ✓ Only buy what you need

APPEARANCE	FLAVOUR	TEXTURE	AROMA
Attractive	Acidic	Brittle	Acrid
Appetising	Aftertaste	Bubbly	Aromatic
Bright	Balanced	Chewy	Burnt
Burnt	Bitter	Clammy	Cheesy
Colourful	Bland	Close	Fishy
Colourless	Buttery	Creamy	Floral
Crumbly	Cheesy	Crisp	Fragrant
Crystalline	Citrus	Crumbly	Fruity
Cuboid	Cool	Crunchy	Light
Dark	Delicate	Dry	Meaty
Dull	Delicious	Flaky	Musty
Evenly baked	Fizzy	Fluffy	Perfume
Firm	Greasy	Greasy	Pungent
Fizzy	Herby	Gritty	Rancid
Flaky	Hot	Hard	Roasted
Flat	Light	Juicy	Rotten
Fragile	Mature	Lumpy	Savoury
Glossy	Mild	Moist	Scented
Golden	Peppery	Mushy	Sour
Golden brown	Refreshing	Open	Spicy
Greyish	Rich	Rubbery	Strong
Heavy	Salty	Runny	Zesty
Interesting	Savoury	Sandy	
Light	Scrumptious	Short	



Nutrients
Macronutrients - needed in large amounts e.g. fat, protein and carbohydrate
Micronutrients - Needed in small amounts e.g. vitamins and minerals
Food groups - Starchy foods, meat, fish and alternatives, dairy foods, oils and spreads, fruit and vegetables.

Year 7 Mood Light

Design and Technology – MoodLight

circuit	**electronic circuit** is composed of individual electronic components, such as resistors, transistors, capacitors and diodes, connected by conductive wires through which electrical current can flow.
Isometric drawing	**Isometric drawing**, also called **isometric projection**, method of graphic representation of three-dimensional objects, used by engineers, technical illustrators, and, occasionally, architects.
Millimetre	Unit of measurement (metric). There are ten millimetres in a centimetre.
Environment	Can you recycle the product, is it environmentally friendly. Which environment will your product be used or be displayed
Safety	How will you ensure that your product will be safe to use for everyone including children?
parallel	**Parallel** definition, extending in the same direction, equidistant at all points, and never converging or diverging: **parallel** rows of trees.
right angle	When two straight lines intersect each other at 90° or are perpendicular to each other at the intersection, they form the **right angle**
soldering	Soldering is a **joining process used to join different types of metals together** by melting solder. Solder is a metal alloy usually made of tin and lead which is melted using a hot iron.
softwood	Softwood refers to Timber that has been cut from a **coniferous** or an evergreen tree. Softwood trees are fast growing due to not loosing their leaves.
hardwood	Hardwood is wood from **deciduous** trees. These are usually found in broad-leaved temperate and tropical forests
manufacture specification	A specification which contains all the information that is needed to make the product. It describes the stages of manufacture and the materials needed.
finishes	Finishes are added to a product's surface after production to improve its functionality and/or aesthetic. Such as: Change the colour of a product, Improving appearance/make the product look more attractive, Change the look and feel of a product Wood stains to enhance the colour of timber. Other finishes for wood are – Varnish, wax, paint or Danish oil.
Input/ output	The input–process–output (IPO) model, or input-process-output pattern, is a widely used approach in systems analysis and software engineering for describing the structure of an information processing program or other process.
L.E.D- Light Emitting Diode	Low voltage light output component used in electronic circuits.
Marking – out ;	Used to measure materials for cutting or joining.
Wood joint	Joints are used to build strength into products made from wood. They should fit accurately .

Specialist materials	
M.D.F – medium density fibreboard	This is manufactured board that is made from wood dust and glue it is cheap but breaks easily when cutting. Used to make the insert for the lid.
Plywood	Manufactured board made from multiple layers of thin wood veneer rotated by 90 degrees to each other , cross grain reduces warping.

Specialist equipment	**Uses**
Tenon saw	Tenon saws are commonly used to make the Tenon's used in mortise and Tenon joints. The saw has a short straight blade .
Bench Hook	A bench hook is a workbench appliance used in woodworking to hold a workpiece in place while crosscutting with a hand saw.
Cross File	To reduce the surface imperfections and remove waste material
Vice	to hold the material whilst it is being worked on
Power drill	Power drill to make the holes in wood metal and polymers for the keyring
Strip Heater	Method of shaping plastic materials like acrylic. Used to heat and fold (bend) in a line to different angles.
Belt sander End Grain sander	A belt sander is designed for high speed sanding, quickly stripping a piece of wood with powerful force, with a rotating abrasive surface.
Materials	**Meaning**
P.V.A	PVA is a water-insoluble resin which is typically white at the point of application, but dries colourless and has a high bonding strength. Gluing woods to woods.
Acrylic	Tough but brittle polymer. Used for car lights, displays stands & textiles. Poly-methyl Methacrylate PMMA

Working Properties

Working properties relate to how a material responds to external forces and/or conditions.

Strength	The ability of a material to withstand force without breaking. Examples of forces include pressure, tension, compression, shear and torsion. Materials may be strong in one force but weak in another (e.g. concrete is strong in compression but weak in tension).
Hardness	The ability of a material to resist wear, abrasion, scratching or denting. Diamond is the hardest naturally occurring substance found on Earth.
Toughness	The ability of a material to absorb energy without fracturing
Malleability	The ability of a material to be bent and shaped without breaking
Ductility	The ability of a material to be stretched or pulled into a strand without breaking
Elasticity	The ability of a material to return to its original shape after being stretched, bent or compressed

Year 7 Mood Light

NATURAL TIMBERS

Hardwoods

Hardwood is from a **deciduous** tree, usually a broad-leafed variety that drops its leaves in the winter

Ash

Properties: Flexible, tough, and shock resistant
Laminates well, pale brown
Uses : sports equipment & tool handles.

Mahogany

Properties: easily worked, durable & finishes well.
Reddish brown.
Uses : high end furniture and joinery, veneers.

Oak

Properties: Tough, hard and durable, high quality finish possible. Light brown.
Uses : flooring, furniture, railway sleepers, veneers.

Beech

Properties: Fine finish, tough & durable. Beige with pink hue.
Uses : Children's toys and models, furniture, veneers.

Balsa

Properties: very soft and spongy, good strength to weight ratio, Pale cream/white.
Uses : prototyping and modelling .

1 Give **two** differences between hardwood and softwood. [2]

Hardwood comes from deciduous trees [1]
Softwood comes from coniferous trees [1]
Deciduous trees are usually slower growing which makes the wood denser [1]

Softwoods

Softwood is from a **coniferous** tree, one that usually bears needles and has cones

Pine

Properties: Lightweight, easy to work, can split and be resinous near knots .Pale yellowish brown.
Uses : Interior construction and furniture.

Spruce

Properties: easily worked, high stiffness to weight ratio. Creamy white colour.
Uses : Construction, furniture and musical instruments.

Larch

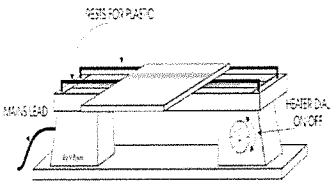
Properties: durable, tough, good water resistance, good surface finish. Pale reddish brown Reddish brown.

Uses : exterior cladding, decking , machined mouldings, furniture and joinery, railway sleeper and veneers.

Bending — **Strip Heater**

Line bending enables thermoplastics to be folded. Acrylic sheets are suitable for this process

A line bender heats a sheet of thermoplastic over a strip heater until it is soft. It can then be bent to a chosen angle. When the plastic cools, it retains the shape



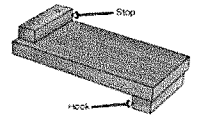
Design and Technology – Moodlight

Tenon saw

Uses:

For:

Tri – Square
Uses: to mark out line perpendicular to the edge of work piece.
Check 90 degree angles



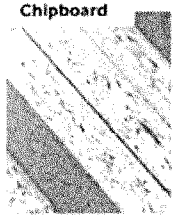
Bench Hook

Uses:. enables a piece of wood to be held firmly in position on a workbench while it is cut through.

MANUFACTURED TIMBERS

Manufactured boards are usually sheets of processed natural timber waste products or veneers combined with adhesives. They are made from waste wood, low-grade timber and recycled timber.

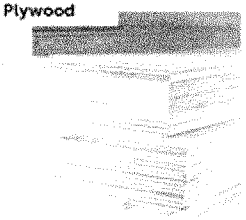
Chipboard



Properties: Good compressive strength, not water resistant unless treated, good value but prone to chipping on edges and corners.

Uses : Flooring, low- end furniture, kitchen units and worktops.

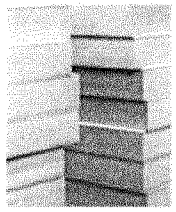
Plywood



Properties: Very stable in all directions due to alternating layers at 90 degrees, with outside layers running in the same direction .

Uses : Furniture, shelving, toys and construction interior, exterior and marine grades available for greater water resistant.

Medium density fibreboard (MDF)



Properties: Rigid and stable, with a smooth, easy to finish surface. Very absorbent so not good in high humidity or damp areas.

Uses : Good value, flat pack furniture, toys, kitchen units and internal construction.

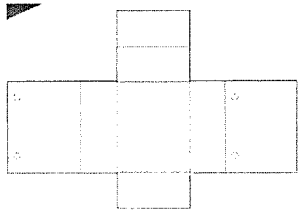
Year 7 Mod Lit

Positive and negative impact - ecological footprint

How does sourcing our materials affect the environment?

Mining Digging the ground or dredging rivers The removal of minerals from the earth Mainly metal based – aluminium ore, gold, silver, iron ore. Mining land – digging huge holes and removing the sediment with huge holes causing stagnant ponds.

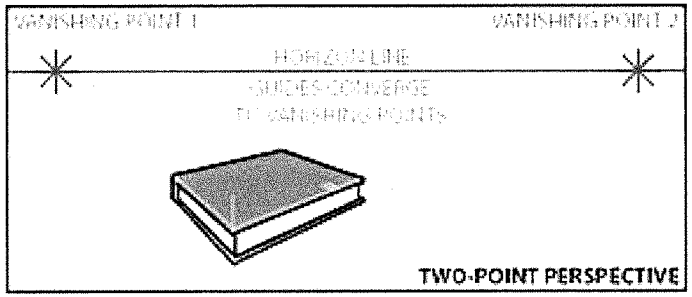
Deforestation cutting down of trees for land or to use for timber / paper The act of cutting down trees in forests. Tress can be 'farmed' just like any other crop, planting the trees specifically to cut down for materials.
Sometimes, deforestation is not responsible and trees are not replanted, animals are not re-homed.



A net is a 2D plan for making a 3D object. You can use CAD to design a net and then use a machine to cut it out.

Mathematical modelling is another way to model. These models use data and information regarding variables to show how an object will behave in reality.

Two point perspective
Perspective Drawing tries to show what something actually looks like in 3D- smaller in the distance. Larger closer up. It does this by using lines that appear to meet at points called vanishing points.



Advantages of CAD	Disadvantages of CAD
Ideas can be drawn and developed quickly	Expensive to set up
Designs can be viewed from all angles and with a range of materials	Needs a skilled workforce

Advantages of CAM	Disadvantages of CAM
Fast and accurate production	Expensive to set up
Machines can run constantly on repetitive tasks	Needs a skilled workforce of engineers

KEYWORDS

1. **Techsoft** - A computer program used for drawing.
2. **Laser Cutter**-CAM machine for cutting accurate shapes .
3. **Deformation** Changing the shape of plastics / metals.
4. **Line bender**- A line bender has a heated element that provides heat, concentrated to just a few millimetres wide, along the length of the long machine. These are used to heat polymers along this line so that they can be bent. Once the polymer softens, it will bend easily into shape around a former before being left to cool.
5. **Two point perspective** - Perspective Drawing tries to show what something actually looks like in 3D- smaller in the distance. Larger closer up. It does this by using lines that appear to meet at points called vanishing points.
6. **Orthographic** They show a 3D object in a set of 2D drawings viewed from different angles. – A front view plan view and end view.
7. **Laser cutting** ; Laser cutting uses a high-power laser to cut through materials like plywood, it is controlled through CAD which is then sent to the CAM (the laser cutter)
8. **CAD** – Computer Aided Design
9. **CAM** – Computer Aided Manufacture

KEYWORDS

1. Task Analysis
2. Design Brief
3. Primary Research
4. Secondary Research
5. Anthropometrics
6. Ergonomics
7. Design Fixation
8. User Centred Design
9. Iterative Design
10. Tie Dye
11. Resist Dye
12. Risk assessment
13. Sustainable
14. Organic
15. Natural fibre
16. Smart Material
17. Production Aid
18. Ferrous
19. Non Ferrous
20. Alloy
21. Mould
22. Casting
23. Pewter
24. Hack saw
25. Files
26. Abrading
27. Abrasive papers
28. Metal polish

MATERIALS

Cotton
Poppers
Tacking thread
Dye
Embroidery thread
Pewter

PRACTICAL SKILLS

- Marking out
- Adapting a pattern
- Pinning and tacking
- Threading a needle
- Setting up a sewing machine
- Using a sewing machine
- Embroidery stitching
- Application of colour
- Filing
- Sawing
- Polishing
- Sanding
- Drilling

The Absolutes Y7 Textiles

Research

Task Analysis- The designer should pick out all the key points in the brief- one way of doing this is through a spider diagram called a task analysis. It's a way of analysing the brief and deciding what research is needed. This helps the designer get ideas; checks people actually want the product; finds out what the target market likes/ dislikes about existing products; find out about materials, components, techniques, manufacturing processes and costs.

Design Brief

The starting point for any design is the design brief. The brief outlines what problem a design will solve. It should be referred to throughout the project to make sure what you are working on will solve this problem The client gives the designer a design brief. It should include: What kind of product is needed, how the product will be used, who the product is for.

Primary Research

Primary research is one that involves the gathering of fresh data, i.e. when data about a particular subject is collected for the first time. Primary research is any type of research that you collect yourself. Examples include surveys, interviews and observations.

Secondary Research

Secondary research involves the summary, collation and/or synthesis of existing research. When conducting secondary research, authors may draw data from published academic papers, government documents, statistical databases, and historical records.

Questionnaire- Primary research. You can find out about your target markets and the information will help you design a suitable product to meet their needs.

Anthropometrics -human body measurement data.

Ergonomics- A product that is easy and comfortable for people to use.

Tools and Equipment

Paper Scissors- Used for cutting out paper patterns.

Iron-

Unpicker- Unpickers are also known as seam-rippers, quick-unpicks. You insert the unpicker between the stitches and pull up so the trends are cut by the small blade.

Dressmaking scissors- Also called fabric shears to cut fabric. These have long very sharp blades.

Pins- Hold the fabric together before stitching together.

Needles- for hand stitching- there are several sizes for thickness of the thread/ beads being used.

Measuring Tape- flexible so it can follow curves

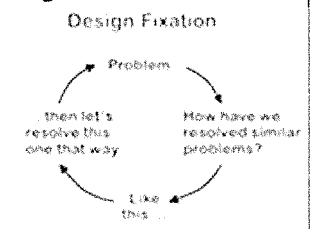
Tailors Chalk- for drawing on fabric

Sewing Machine- Strong stitches. Speeds up manufacture.

Design Fixation- It is when a designer fails to break new ground, but follows existing solutions. It is when the designer follows conventional ideas.

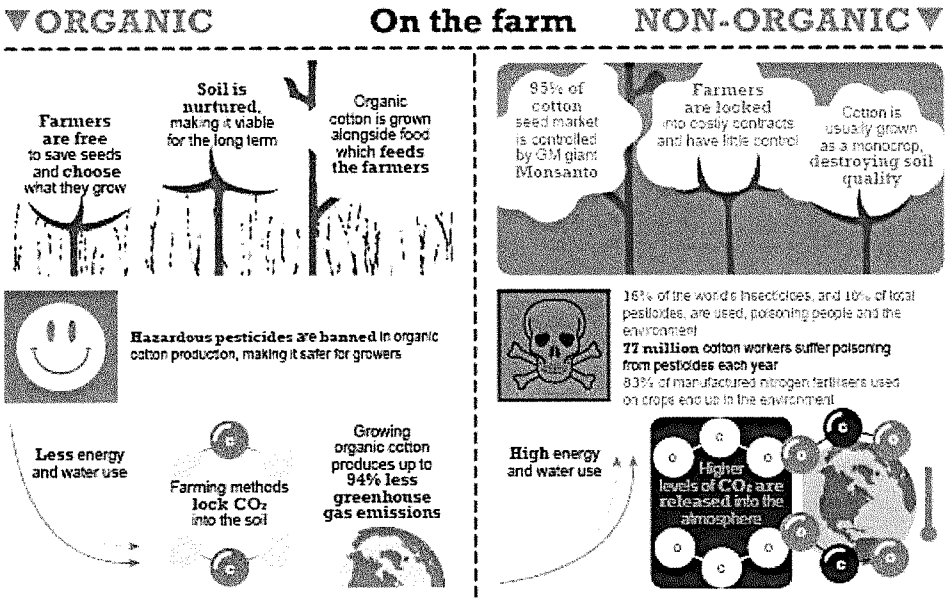
User Centred design - Asking A sample of the target market for input in the design process. The aim is gain feedback from potential users on your designs and make improvements so its more appealing to your target market

Iterative design- a design strategy that involves constantly evaluating and improving a products design.



Cotton- Comes from a plant. It is grown and the cotton is taken from the cotton boll.
Sustainable- A sustainable process or material is one that can be used without causing permanent damage to the environment or using up finite resources
Organic- production without the use of chemical fertilizers, pesticides, or other artificial chemicals

Positive and negative impact of the use of cotton.



Natural and Synthetic Fibres

Natural fibre A type of fibre that is harvested from natural sources e.g. plants and animals.
Natural fibres: cotton, wool, silk
Synthetic fibres: polyester, polyamide (nylon), elastane (lycra)

Natural fibres can come from plant or animal sources

	Origins	Example	Properties	Uses
Cotton	Cotton comes from the fine hairs on the seed pod of a cotton plant.		Soft and strong, absorbent, cool to wear and easily washable. Cotton fabrics can be given a brushed finish to increase their thermal properties	Most clothing, especially shirts, underwear and denim can be made from cotton. Also used for towels and bedsheets

Manufacturing Process- Tie Dye

Is typically brightly coloured, patterned textile or clothing which is made from ordinary cloth, usually cotton, through a **resist dyeing** process known as tie-dyeing. Methods are used to "resist" or prevent the dye from reaching all the cloth, thereby creating a pattern. Elastic bands resist the dye. A **mordant** fixes the dye and stops it from running. Salt is a mordant.

Scale of Production

One Off Production (Also known as: bespoke, made to measure, custom made.) A single product or unit is made.
Mass Production Large numbers of identical products are manufactured over a long period of time. Used for products constantly in demand.
Continuous Production differs from mass production as it runs non-stop, 24 hours a day, 7 days a week. manufacturing products to meet a constant demand
Batch Production A specific quantity of a product is made; this is called a batch. Batches can be repeated as many times as necessary.

Health and Safety of the Sewing Machine

Dangers when using an industrial sewing machine. - E.g. stitching fingers, electrocution, and inhalation of textile dust. Two dangers related to use of industrial sewing machines. You can reduce the dangers of using a sewing machine by - Training of staff, regular safety and maintenance checks, emergency stop buttons, regular breaks so concentration is not lost. One person per machine, tidy areas. Keep fingers away from the needle.

Risk Assessment

Is used to identify and minimise any risks when working. Think about the hazard and the precaution that could be taken to minimise the risk.

Hazard	Precaution — how to reduce the risk
Clothing could get caught in the sanding machine.	Tuck clothes in and wear an apron
Fine dust created when using a sanding machine.	Wear a mask and use a dust extractor

Profit and Costing

When considering costings, you must consider- how many products you are making, the cost of materials, machinery and overheads.

Bulk buying

Raw materials can be bought in bulk because your buying so much it allows you to negotiate a discount with the supplier.

Metals.

1. What is Ferrous metal?

Ferrous metal contains Iron & is magnetic. Example ; Steel.

2. What is Non - Ferrous metal?

Non ferrous does not contain iron & is not magnetic. Examples : aluminium, copper.

3. What does Alloy mean?

A metal made by combining two or more metallic elements, especially to give greater strength or resistance to corrosion. Examples : Brass, Bronze.

Positive and negative impact – ecological footprint

How does sourcing our materials affect the environment?

Mining Digging the ground or dredging rivers The removal of minerals from the earth Mainly metal based – aluminium ore, gold, silver, iron ore. Mining land – digging huge holes and removing the sediment with huge holes causing stagnant ponds.

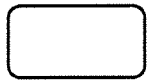
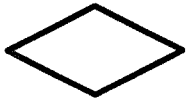
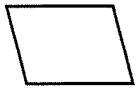
Flowchart

It is beneficial as; The order of making is logical, to helps meet schedules/deadlines. It simply/clearly communicates instructions for making so all the pieces are made in the same way.

Flowcharts have inputs which is equipment, machinery material and components needed. A flowchart must include quality control

Check points, these are decisions. Feedback is used as a form of quality control and should form a yes or no answer

A flowchart is a type of diagram that represents a workflow or process. These symbols represent stages in the flow.

	All flowcharts begin and end with the **start/ finish** symbol. This shape is called a **terminator**
	A **process** box is used when there is an instruction that must be carried out.
	A diamond box is used when a **decision** needs to be made. The outcome of the decision must be either yes or no.
	**Inputs** to the system are represented by a parallelogram box

Commercial Process Casting

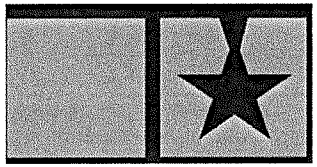
A mould can be made from any material , it is used to pour molten metal into, to create a shape we are using it to pour molten pewter into it.

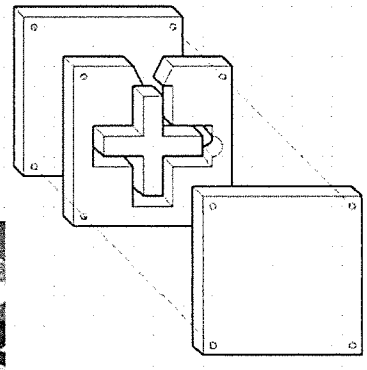
Explain what is meant by casting.

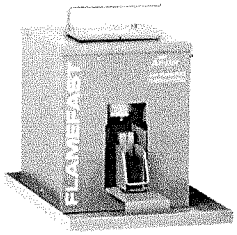
When you heat metals (or polymers) and pour them into a mould this is called casting.

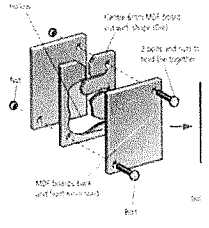
What is a sprue?

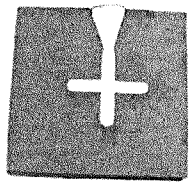
The funnel for pouring the pewter into.

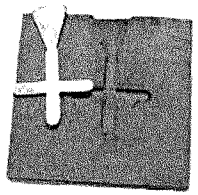












Smart Materials

That materials can have one or more properties that can be significantly changed in a controlled fashion by external stimuli, such as stress, temperature, moisture, or PH e.g. shape memory alloys, thermochromic pigments and photochromic pigments

Thermochromic paints can be added to any surface like these mugs or a textiles or card based product to react to heat.