ENGLISH Year 10 Half Term 2: A Christmas Carol

"If you believe you can achieve!"

10 Key Quotations to learn

1. Narration: 'The cold within him froze his old features.'
2. Scrooge: "…decrease the surplus population."
3. Narration: 'hard and sharp as flint'
4. Narration: 'solitary as an oyster'
5. Marley: "I wear the chain I forged in life"
6. Scrooge: "What Idol has replaced you?" Belle: "A golden one."
7. Ghost of Christmas Present: "This boy is Ignorance. This girl is Want."
8. Scrooge: "I will honour Christmas in my heart."
9. Scrooge: "I am as light as a feather."
10. Scrooge: "I am as merry as a schoolboy."

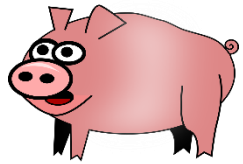
Characters

Ensure you know the importance of each character:

- Ebenezer Scrooge
- Jacob Marley
- Fezziwig
- Fan
- Bob Cratchit
- Tiny Tim
- Ghost of Christmas Past
- Ghost of Christmas Present
- Ghost of Christmas Yet to Come

Social and Historical Context. Learn this mnemonic (PIGS) to help you recall the main contextual points

- Poverty and the Poor Law
- Industrial Revolution
- Ghosts and Spirits
- Social Responsibility



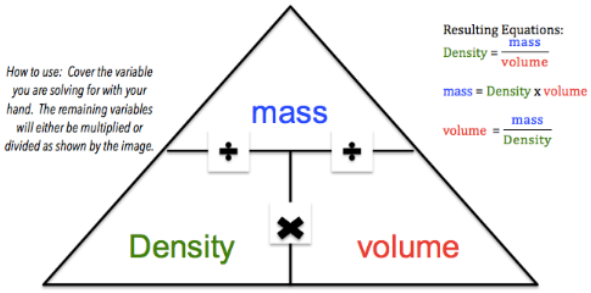
Charles Dickens

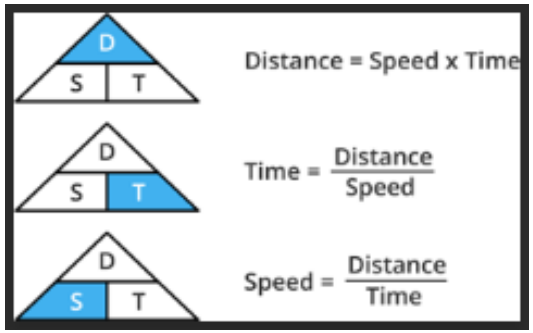
- He was a writer and social critic.
- He was born in Portsmouth, England, in 1812.
- He left school to work in a factory when his father was imprisoned for debt.
- Three of his most famous works are Oliver Twist, Great Expectations and A Christmas Carol.
- He felt strongly about social injustice and, in particular, the way children were treated.

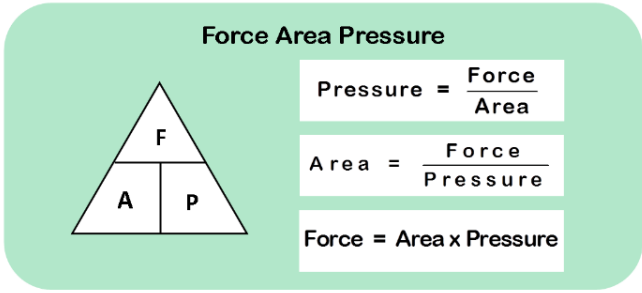
MATHS Year 10 Half Term 2: Ratio and Proportion

"If you believe you can achieve!"

Key Formulae





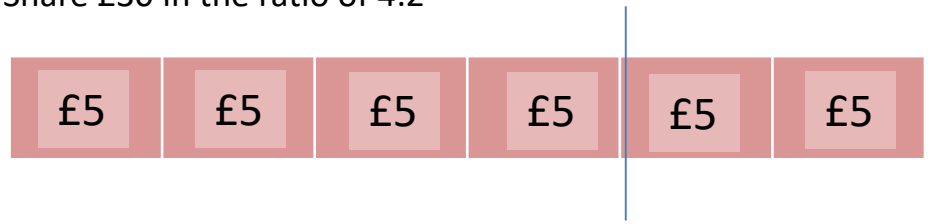


Ratio – Key concept

Simplifying and Equivalent Ratios	Multiply and divide ratios by same value in order to keep them in proportion during calculations.
The Unitary Method 1:n n:1	You write ratios in this form when you want to compare one part to another. Divide each side by the same amount Eg: Simplify 5:7 $1:\frac{7}{5}$

Sharing in a given ratio

Share £30 in the ratio of 4:2



Whole bar represents £30.
Divide £30 by the number of boxes represented in the ratio of 4:2.

£30 ÷ 6 = £5.
Therefore each box represents £5

4 parts x £5 = £20 2 parts x £5 = £10

SCIENCE Year 10 Biology Term 2: Bioenergetics

"If you believe you can achieve!"

Glossary:

- **Photosynthesis**
The process by which plants use energy to convert carbon dioxide and water into glucose and oxygen.

- **Chloroplasts**
A structure found in plant cells and algae, which contain Chlorophyll. Chloroplasts are the site of photosynthesis.

- **Chlorophyll**
A green substance found in chloroplasts which absorbs light for photosynthesis.

- **Limiting Factor**
A factor which prevents a reaction from going any faster e.g. temperature

- **Respiration**
The process where energy is released from the breakdown of glucose.

- **Aerobic Respiration**
The reactions involved in breaking down glucose using oxygen, to transfer energy. Carbon dioxide and water are produced.

- **Anaerobic Respiration**
The incomplete breakdown of glucose, which produces lactic acid in humans and Carbon dioxide and ethanol in plants and yeast. It takes place in the absence of oxygen.

- **Lactic Acid**
The product of anaerobic respiration that builds up in muscles.

- **Oxygen Debt**
The amount of extra oxygen your body needs after exercise to react with the build up of lactic acid and remove it from cells.

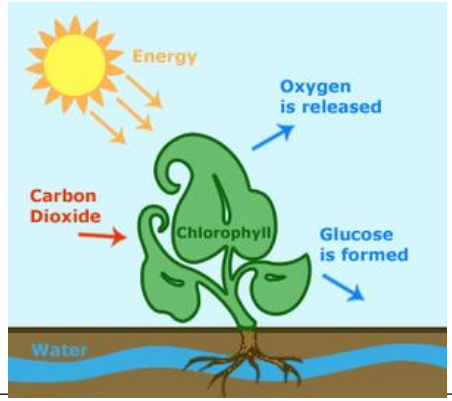
- **Metabolism**
All the chemical reactions that happen in a cell or the body.

The Basics of Photosynthesis

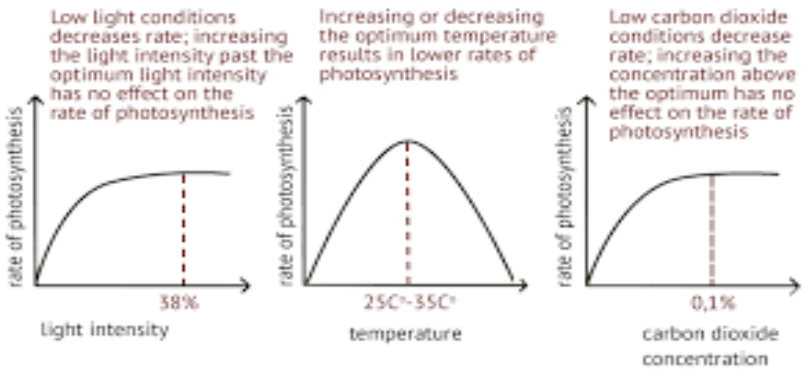
Photosynthesis is the process that produces 'food' in plants. The 'food' it produces is **glucose** (a sugar). Photosynthesis uses energy to change carbon dioxide and water into glucose and oxygen.

How Plants Use Glucose –

1. Respiration
2. Making cellulose
3. Making amino acids
4. Storage
5. Covert to starch
6. Convert to lipids



The Rate of Photosynthesis – factors such as light intensity, carbon dioxide level and temperature can all affect the rate.



SCIENCE Year 10 Biology Term 2: Bioenergetics

"If you believe you can achieve!"

Photosynthesis Rate RPA

1) Set up a clamp stand containing a boiling tube at a distance of 10 cm away from the light source.

2) Fill the boiling tube with the sodium hydrogen carbonate solution.

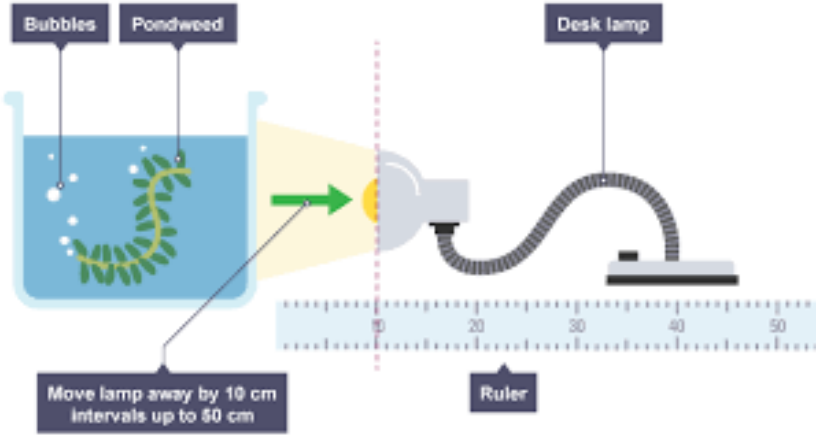
3) Put the piece of pondweed into the boiling tube with the cut end at the top.

4) Leave the boiling tube for 5 minutes.

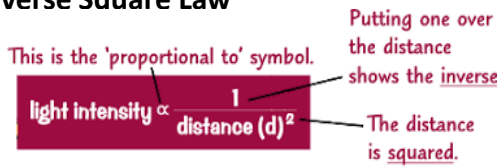
5) Start the stop watch and count how many bubbles produced in one minute.

6) Repeat the count twice more. Then use the data to calculate the mean number of bubbles per minute.

7) Repeat steps 1 – 6 with the boiling tube at distances of 20cm, 30cm and 40cm from the light source.



Inverse Square Law



Artificially Controlling Plant Growth

Greenhouses can give ideal conditions for plant growers.

Temperature – trap the sun's heat.

Light – Supply artificial light when sun goes down.

Carbon Dioxide – Use a paraffin heater to produce carbon dioxide as a by-product.

Aerobic Respiration – is using oxygen. It is the most efficient way to transfer energy from glucose.

Glucose + Oxygen → Carbon Dioxide + Water + Energy

Anaerobic Respiration - Is the incomplete breakdown of glucose, making lactic acid.

Glucose → Lactic Acid + Energy

Exercise and Metabolism

Muscle cells use oxygen to transfer energy from glucose (aerobic respiration), which is used to contract the muscles. **Muscles fatigue** is when the muscles get tired and stop contracting efficiently.

Metabolism is the sum of all the chemical reactions in the body, which are controlled by **enzymes**.

SCIENCE Year 10 Physics Half Term 2: Radioactivity

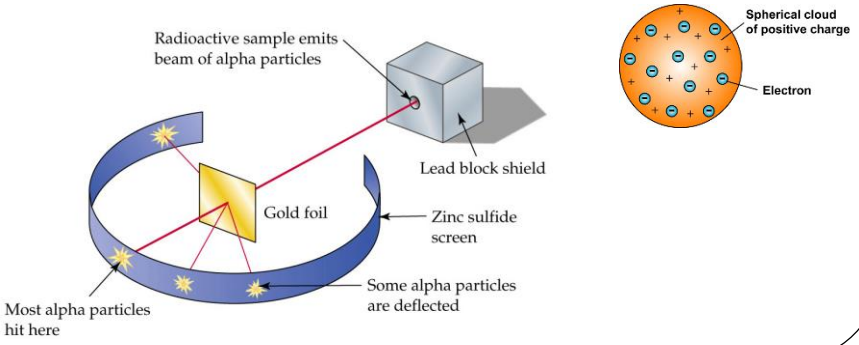
"If you believe you can achieve!"

Glossary:

- **Atom**
  The smallest building blocks of physical matter.
- **Alpha particle**
  A small particle, made of 2 protons and 2 neutrons. It has a positive charge.
- **Nucleus**
  The centre of an atom, containing protons and neutrons.
- **Isotopes**
  These are versions of atoms that contain different amounts of neutrons.
- **Radioactive decay**
  This is the random process in which an unstable nuclei breaks down and emits radiation.
- **Radiation**
  This is emitted from the nuclei during decay. It can be either Alpha, Beta, or Gamma radiation.
- **Half life**
  The time taken for half of (the nuclei in) a radioactive sample to decay.
- **Irradiation**
  This occurs when you are exposed to radiation from a radioactive source.
- **Contamination**
  This is when a radioactive sample is found in, or on, another material/person.
- **Nuclear Fission**
  This is the release of energy from the nuclei of decaying atoms in a chain reaction.
- **Nuclear Fusion**
  This is the fusion of two light nuclei, creating a heavier nuclei, and releasing energy in the process.

Alpha scattering experiment

This experiment was used to disprove the plum pudding model of atomic structure, and suggest the structure of the atomic model .

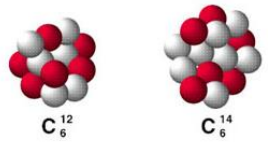


Alpha scattering experiment – Outcomes and suggestions

Observation	What it suggests
99% went straight through undeflected	The majority of the atom must contain empty space
A small number went through deflected	The atom must have a central, positive nucleus
1/3000 bounced back	The central, positive nucleus is tiny

Isotopes

These are 2 isotopes of Carbon. The one on the right is heavier, with two extra neutrons.



SCIENCE Year 10 Physics Half Term 2: Radioactivity

"If you believe you can achieve!"

Properties of radiation

Radiation type	Travels…	Stopped by…	What is it?
Alpha	10cm	Paper / skin	2 protons and 2 neutrons
Beta	1m	Aluminium	A fast moving electron
Gamma	infinite	Lead	A wave

Nuclear Equations

Alpha Decay

An Alpha particle has the same nucleus as a Helium atom. It is represented as a Helium nuclei.

$$C_{6}^{14} \rightarrow Be_{4}^{10} + He_{2}^{4}$$

The numbers either side of the arrow have to balance, so **subtract** the Helium numbers to identify the missing values.

Beta Decay

A Beta particle is an electron. It has no mass, and a negative charge.

$$C_{6}^{14} \rightarrow N_{7}^{14} + \beta_{-1}^{0}$$

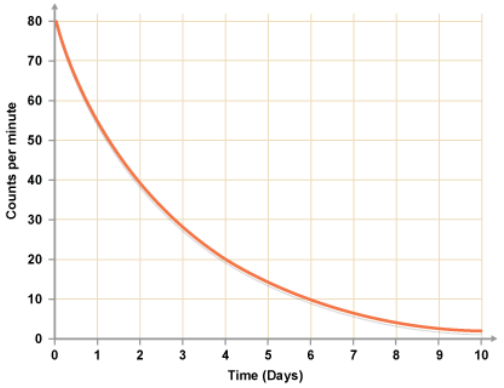
The numbers either side of the arrow have to balance, so **subtract** the Beta numbers to identify the missing values.

Half life

Decay is a random process, however all radioactive substances will see half of their nuclei decay in a specific amount of time. This time if known as a "half-life". This can be monitored by watching the count rate of the material. The time taken for the count rate to reduce by 50% is the half life time.

In the graph on the right hand side, you can see that the count drops from 40 to 20 in 2 days.

This repeats again, with the count dropping from 40 to 20 over another 2 days.



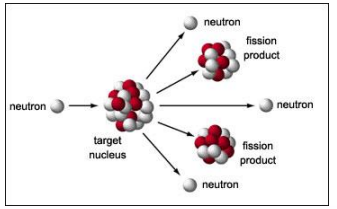
Exposure to radiation

Radiation is ionising, and can be highly dangerous. Exposure comes in 2 forms:-

- **Irradiation** -This occurs when you are exposed to radiation from a radioactive source. This is often a short experience.
- **Contamination** -This is when a radioactive sample is found in, or on, another material/person. These effects are long lasting.

Nuclear Fission

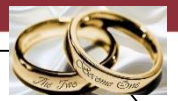
In Fission, a neutron collides with a nuclei. This causes the nuclei to break, producing two smaller nuclei, and releasing energy in the process.



RE Edexcel GCSE: Relationships and Families in the 21st Century

"If you believe you can achieve!"

Key Word	Definition
Celibate	Unmarried; and therefore not engaging in sexual activity
Nuclear Family	A married couple and their own children; a 'unit' of society
Denomination	A recognised branch of the Christian Church
Secular	Not concerned with religion or religious matters
Situation Ethics	Where right and wrong depend on the circumstances of a situation
Cohabitation	A couple who live together without being married. Usually they are also in a sexual relationship
Premarital Sex	Sex before marriage
Extramarital Sex	Adultery – sex outside of marriage with someone who is not your husband or wife
Procreation	The act of having a baby
Sanctity of Life	The belief that life is holy and belongs to God
Contraception	A method or device used to prevent pregnancy; this can be natural or artificial
Divorce	Ending of a legal marriage by a court of law
Annulment	A declaration that the marriage was never valid - rare



Catholic Marriage:

- The Bible teaches marriage is not a human institution or legal arrangement, it was established by God in the creation story in Genesis.
- Genesis shows that man and woman were created for each other, and to reproduce. For this reason the Catholic Church does not allow same-sex marriage.
- Marriage is a sacrament- the couple make vows to each other and enter into an eternal covenant.
- The Church sees marriage as uniting a couple and as the best environment in which to bring up children.
- Marriage is also important in society as it provides legal rights and responsibilities for the couple.

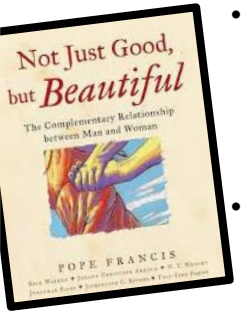
The purposes of Catholic Marriage are:

Fruitful – open to the possibility of children – "Be fruitful and multiply" (Genesis)

Exclusive – commitment to just one partner

Loving – based on love and faithfulness

Lifelong – lifelong support and comfort – "Till death do us part" (The Wedding Vows)



- "Children have the right to grow up with a father and a mother…Each man and woman brings his or her distinctive contributions to their marriage and to the formation of their children"
- "For the family grounded in marriage is the first school where we learn to appreciate our own and others' gifts, and where we begin to acquire the arts of cooperative living."

Divorce:

- The Catholic Church does not believe that divorce from sacramental marriage is possible and annulment can only take place under strict circumstances. The Bible says; "I hate divorce says the Lord" and "What God has joined together let no man separate".
- Other Christians do not encourage it but allow divorce and remarriage, some suggest Jesus allowed it for adultery and that it can be the 'lesser of two evils'.
- Non-religious groups usually allow divorce and remarriage but encourage people to act in the family's best interests.

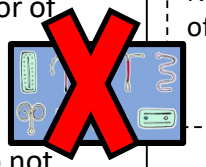
RE Edexcel GCSE: Relationships and Families in the 21st Century

"If you believe you can achieve!"

Family Planning

The Church believes any form of contraception, apart from NATURAL family planning is wrong. This is because:

- It undermines sexual relations as being unitive **and** procreative
- To prevent pregnancy 'contradicts the will of the Author of life' (Humanae Vitae)
- It can encourage sex outside of marriage



Many other Christians, such as the Church of England, do not regard contraception as a sin. It is also widely accepted. This is because:

- Individuals can make decisions that are best for themselves and their families
- Some people follow Situation Ethics – what is right or wrong depends upon the circumstances
- It can stop the spread of STI's

The Importance of the Family

Catholics believe that the family was created by God and is the right place to bring up children.

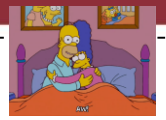
The Family is the 'domestic Church' (The Catechism) because the family is a place to learn; what is right or wrong, about the faith and how to pray.

There is a great variety of family structures in the UK; Nuclear, Blended (with step parents/siblings), single-parent and same-sex.

The Church promote the importance of Nuclear families.

Supporting families is an important role of the parish. They do this by offering; family worship, classes for parents, groups for children, marriage counselling and charity work.

Sexual Relationships



The Church teaches that;

- sexual relationships bring together a man and a woman who are married to each other for the purpose of having children.
- Sex connects married couples in a spiritual and loving way

Non-religious groups such as humanists and other people in secular society often believe;

- Consensual sex before marriage is acceptable
- Same sex relationships are acceptable

The Roles of Men and Women

The Catholic Church teaches that men and women should have equal roles in life and equal rights in society.

Genesis shows the equality of, and differences between, men and women. Both men and women were created in God's image. Both disobeyed God. They are cursed for their disobedience in different ways.

The Bible teaches "There is neither male nor female… you are all one in Christ".

The Church recognises the value of domestic work, whoever does it. It is equally important as work that generates income.

Some Bible passages can be interpreted to suggest gender inequality (e.g. "Women should be silent in Church"), but others suggest men and women should support each other. Jesus did not discriminate against women and set an example for Catholics to follow.

Women cannot be ordained in the Catholic Church, but still play an active role.

In the Church of England women can become both priests and bishops.

HISTORY Year 10: Early Elizabethan England 1558-88

"If you believe you can achieve!"

Key topic 1: Queen, Government and Religion 1558-69/The situation on Elizabeth I's accession

The intended purpose of this unit of study is to develop pupils' knowledge and understanding of the key problems Queen Elizabeth faced in 1558 upon her accession and her actions in tackling these. Furthermore, pupils will have the opportunity to develop the following historical skills; describing key features, explaining and analysing reasons, evaluating interpretations.

Pupils should know:

- The key features of the Tudor Dynasty e.g. issues she had inherited from her predecessors Henry VIII, Edward VI and Mary I.
- The Key features of Elizabethan Society and Government e.g. The hierarchy and the role of the Nobles and Gentry
- How Elizabeth was successful at selecting her Privy Council e.g. appointing William Cecil as Secretary of State
- How Elizabeth dealt with her Royal finances and the inherited debt from Mary I e.g. the selling of crown lands
- How Elizabeth dealt with threats from abroad e.g. The Treaty of Cateau-Cambrésis
- How Elizabeth dealt with people's negative attitudes towards her e.g. how she overcame negative ideas about gender, legitimacy and marriage.

Opportunities for deeper learning can be accessed by exploring the following topic-specific websites or YouTube clips:

https://www.bbc.co.uk/bitesize/guides/zyr6bk7/revision/1

https://www.senecalearning.com/seneca-certified-resources/early-elizabethan-england-1558-88-gcse-edexcel/

https://www.elizabethi.org/contents/power/privycouncil.html

https://www.historylearningsite.co.uk/tudor-england/mary-queen-of-scots/

Glossary:

Hierarchy: a system in which members of an organization or society are ranked according to relative status or authority.

Nobles: Men from the greatest and wealthiest families in the land

Privy Council: The core group of English nobles that acted as Elizabeth's main advisors and key members of the government.

Legitimacy: To inherit the throne, the monarch must be born whilst the reigning king and queen were married- children born out of wedlock were deemed illegitimate.

Historical Skills

- **Describing key features** involves the use of a range of precise and detailed information to describe the two main aspects of something.
- **Analysing reasons** involves explaining a range of causes of a historical event in order to consider how they link together and which is the most important.
- **Evaluating interpretations** involves the use of a range of precise and detailed information to explain both sides of a historical argument but with a clear sense of overall judgment.

HISTORY Year 10: Early Elizabethan England 1558-88

"If you believe you can achieve!"

Key topic 1: Queen, Government and Religion 1558-69/The Religious Settlement of 1559

The intended purpose of this unit of study is to develop pupils' knowledge and understanding of the key features of Queen Elizabeth I's 1559 Religious Settlement. Furthermore, pupils will have the opportunity to develop the following historical skills; describing key features, explaining and analysing reasons, evaluating interpretations.

Pupils should know:

- **The key features of the Church of England and its role in society** e.g. Most people went to church every Sunday and all the important rituals of their lives and daily routines were linked to the Church. Both Catholics and Protestants believed that their way of practicing Christianity was right
- **Elizabeth I inherited a country that was deeply divided over religion e.g.** English Catholics wanted to retain the Catholic religion However, English Protestants wanted Elizabeth I to introduce more simple churches, with greater emphasis on the word of God.
- **Elizabeth I and her Privy Council began immediately drawing up plans for a new Church of England.** e.g. She chose a Church which she thought would be acceptable to the majority of people in England.
- **The decisions she made in the settlement essentially meant that the Church of England was Protestant in doctrine but had the appearance of a Catholic church e**.g. Elizabeth was to be Head of the Church in the role of 'Supreme Governor, rather than the Pope but decorations and ornaments were still allowed.

Opportunities for deeper learning can be accessed by exploring the following topic-specific websites or YouTube clips:

https://www.bbc.co.uk/bitesize/guides/zyr6bk7/revision/1

https://www.senecalearning.com/seneca-certified-resources/early-elizabethan-england-1558-88-gcse-edexcel/

https://www.elizabethi.org/contents/elizabethanchurch/settlement.html

https://www.youtube.com/watch?v=cjoSqVyqBnM

Glossary:

Catholics: Christians who follow the doctrine of the Roman Catholic Church and see the Pope as the Head of the Church.

Protestants: Christians who follow the doctrine of the Church of England and see the English Monarch as the Head of the Church.

Clergy: people ordained for religious duties in the Christian Church e.g. Bishops and Preists

Supreme Governor: The title Elizabeth I gave herself as Head of the Church in the 1559 Religious Settlement.

Historical Skills

- **Describing key features** involves the use of a range of precise and detailed information to describe the two main aspects of something.
- **Analysing reasons** involves explaining a range of causes of a historical event in order to consider how they link together and which is the most important.
- **Evaluating interpretations** involves the use of a range of precise and detailed information to explain both sides of a historical argument but with a clear sense of overall judgment.

HISTORY Year 10: Early Elizabethan England 1558-88

"If you believe you can achieve!"

Key topic 1: Queen, Government and Religion 1558-69/Challenges to the Religious Settlement

The intended purpose of this unit of study is to develop pupils' knowledge and understanding of the challenges posed by Catholics and Puritans to Queen Elizabeth I's 1559 Religious Settlement. Furthermore, pupils will have the opportunity to develop the following historical skills; describing key features, explaining and analysing reasons, evaluating interpretations.

Pupils should know:

- **The Puritan reaction to the Settlement e.g.** The Puritans were pleased that under Elizabeth I, the Church of England was to be Protestant, but felt that the religious changes that were made did not go far enough.
- **Elizabeth's reaction to the Puritan challenge: e.g.** Elizabeth I made it clear that Puritans had no right to challenge her authority. She knew that Puritans were a minority and that it was unlikely that they would ever plot to overthrow her or help a foreign country to attack England. Elizabeth I refused to agree to any further changes and even had Puritan opponents imprisoned.
- **The Catholic reaction to the Settlement e.g.** Many Catholics in England accepted the Religious Settlement because of the compromises that Elizabeth I had made. However, some Catholics, known as recusants, refused to attend new Church services.
- **Elizabeth's reaction to the Catholic challenge: e.g.** Initially, Elizabeth I showed great leniency towards Catholics. For example, she did not strictly enforce fines against recusants. However, as her reign progressed and fears of a Catholic invasion and plots against her life intensified, acts passed by Parliament identified 'active' Catholics who were hostile to Elizabeth I would face the death penalty.

Opportunities for deeper learning can be accessed by exploring the following topic-specific websites or YouTube clips:

https://www.bbc.co.uk/bitesize/guides/zyr6bk7/revision/1

https://www.senecalearning.com/seneca-certified-resources/early-elizabethan-england-1558-88-gcse-edexcel/

https://schoolshistory.org.uk/topics/british-history/elizabethan-era/challenges-elizabethan-religious-settlement/

https://studyrocket.co.uk/revision/gcse-history-edexcel/edexcel-elizabethan-england/elizabeths-religious-settlement

Glossary:

Puritans: Very strict English Protestants

Catholics: Christians who follow the doctrine of the Roman Catholic Church and see the Pope as the Head of the Church.

Recusants: Catholics who refused to accept Elizabeth I's Religious Settlement and refused to attend the new church services.

Historical Skills

- **Describing key features** involves the use of a range of precise and detailed information to describe the two main aspects of something.
- **Analysing reasons** involves explaining a range of causes of a historical event in order to consider how they link together and which is the most important.
- **Evaluating interpretations** involves the use of a range of precise and detailed information to explain both sides of a historical argument but with a clear sense of overall judgment.

HISTORY Year 10: Early Elizabethan England 1558-88

"If you believe you can achieve!"

Key topic 1: Queen, Government and Religion 1558-69/The problem of Mary, Queen of Scots

The intended purpose of this unit of study is to develop pupils' knowledge and understanding of the reasons why Mary, Queen of Scots posed a threat to Elizabeth I from 1568. Furthermore, pupils will have the opportunity to develop the following historical skills; describing key features, explaining and analysing reasons, evaluating interpretations.

Pupils should know:

- **In May 1568, Mary Queen of Scots arrived in England from Scotland**. The arrival of Mary Queen of Scots in England in May 1568 was a major problem for Elizabeth I as she was seen by some Catholics as the rightful Queen of England.
- **Mary Queen of Scots was a threat due to her links with France.** She may have returned from France in 1561, after the death of her first husband, King Francis of France, but she still had close links to the French. If the Catholic French decided to launch a religious crusade against England, there might be Catholics in England who were ready to make Catholic Mary Queen of Scots queen.
- **Mary Queen of Scots had a claim to the English throne.** Not only did Mary Queen of Scots have a claim to the English throne as Elizabeth I's cousin and heir, her second husband, Henry, Lord Darnley, also had a distant claim to the throne. This marriage strengthened her claim to the English throne, as did the birth of her son, James, in 1566. This meant that anyone who wanted Mary Queen of Scots to be the Queen of England could argue that the line of succession was guaranteed.
- Elizabeth I could not accept the idea that she should execute her cousin. As a result, Elizabeth I chose to imprison Mary Queen of Scots.

Opportunities for deeper learning can be accessed by exploring the following topic-specific websites or YouTube clips:

https://www.bbc.co.uk/bitesize/guides/zyr6bk7/revision/1

https://www.senecalearning.com/seneca-certified-resources/early-elizabethan-england-1558-88-gcse-edexcel/

https://www.historylearningsite.co.uk/tudor-england/mary-queen-of-scots/

https://www.historyextra.com/period/elizabethan/deadly-rivals-elizabeth-i-and-mary-queen-of-scots/

Glossary

Religious crusade: launching a war with the end goal being religious change.

Heir: The person who is entitled to inherit the throne

Line of succession: An ordered sequence of named people who would succeed the previous monarch upon their death

Historical Skills

- **Describing key features** involves the use of a range of precise and detailed information to describe the two main aspects of something.
- **Analysing reasons** involves explaining a range of causes of a historical event in order to consider how they link together and which is the most important.
- **Evaluating interpretations** involves the use of a range of precise and detailed information to explain both sides of a historical argument but with a clear sense of overall judgment.

GEOGRAPHY Year 10 Half Term 1-2: Tectonic Landscapes and Hazards

"If you believe you can achieve!"

Glossary:

Crust: outer layer of the earth, thin solid rock broken into plates

Mantle layer directly under the crust made of semi molten rock

Outer Core liquid mental which moves giving us our magnetic field

Inner core solid mental centre of the earth.

Tectonic plate a large section of the earths crust which carries water or land

Oceanic Plate and thinner denser plate which carries water

Continental Plate a thicker lighter plate which carries land

Convection currents movements n the mantle causing by rising and sinking molten rock which cause the plates to move.

Volcano a vent in the earths crust from which molten rock erupts

Plate boundary where 2 plates meet.

Destructive plate boundary where 2 plates move towards each other

Constructive plate boundary where plates move apart

Earthquake is a sudden violent shaking of the ground, typically causing great destruction, as a result of movements within the Earth's crust or due to volcanic action.

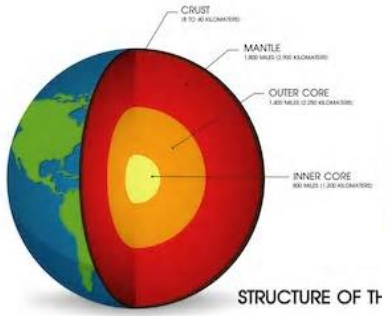
Tsunami a large wave created by an underwater earthquake

Shield Volcano a volcano with a wide base and gentle sloping sides, which is formed on a constructive plate boundary

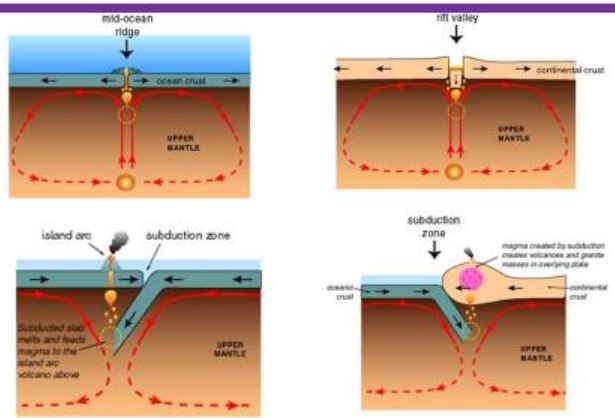
Composite Volcano a steep sided volcano which erupts with violent force found on destructive plate boundaries

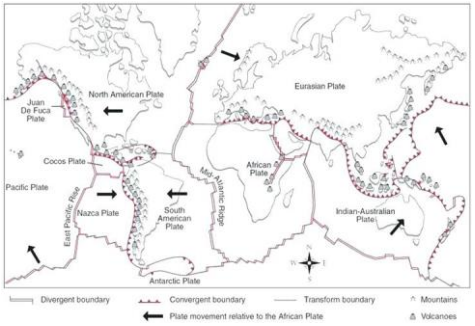
Focus the point under the surface where the earthquake happens

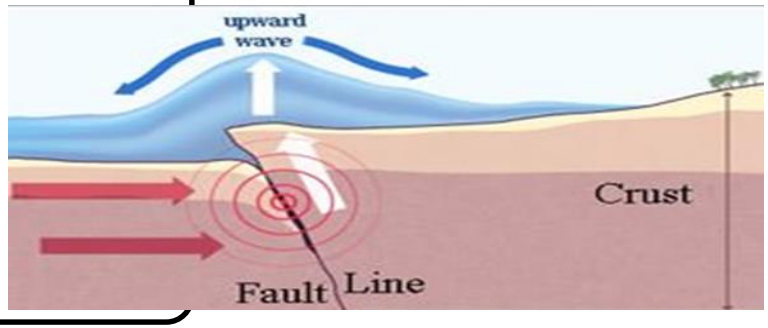
Epicentre point on the surface directly above the focus where the earthquake is strongest



The type of landforms created at plate margins depends on whether they are **constructive** or **destructive** margins and also which types of tectonic plates meet at these margins. **Oceanic plates** are denser than **continental plates**.







Modified Mercalli Scale		Moment Magnitude
I. Instrumental	Not felt	1-2
II. Just perceptible	Felt by only a few people, especially on upper floors of tall buildings	3
III. Slight	Felt by people lying down, seated on a hard surface, or in the upper stories of tall buildings	3.5
IV. Perceptible	Felt indoors by many, by few outside; dishes and windows rattle	4
V. Rather strong	Generally felt by everyone; sleeping people may be awakened	4.5
VI. Strong	Trees sway, chandeliers swing, bells ring, some damage from falling objects	5
VII. Very strong	General alarm; walls and plaster crack	5.5
VIII. Destructive	Felt in moving vehicles; chimneys collapse; poorly constructed buildings seriously damaged	6
IX. Ruinous	Some houses collapse; pipes break	6.5
X. Disastrous	Obvious ground cracks; railroad tracks bent; some landslides on steep hillsides	7
XI. Very disastrous	Few buildings survive; bridges damaged or destroyed; all services interrupted (electrical, water, sewage, railroad); severe landslides	7.5
XII. Catastrophic	Total destruction; objects thrown into the air; river courses and topography altered	8

FRENCH Year 10 Topic 2: Le temps de loisirs

"If you believe you can achieve!"

Grammar

The verb faire

faire (*to do/make*)

je fais
tu fais
il/elle/on fait
nous faisons
vous faites
ils/elles font

(*perfect tense*) **j'ai fait**

depuis + the present tense Page 234

Use ***depuis*** + **the present tense** to say how long something has been happening.

*Je joue au tennis **depuis** cinq ans.*
I have been playing tennis for five years.

The position of adjectives Page 224

Most adjectives come after the noun:

*C'est un sport **rapide**.*

However, some adjectives come in front of the noun, e.g. ***beau*** and ***bon***:

*C'est un **beau** sport.*
*Cela demande … une **bonne** coordination.*
*de **bons** réflexes.*

Refer to page 224 for a list of other adjectives that come before the noun.

Le sport	Sport		
Je fais …	*I do/go …*	de la planche à voile	*wind-surfing*
du canoë-kayak	*canoeing/kayaking*	de la voile	*sailing*
du footing	*jogging*	de l'escalade	*climbing*
du hockey sur glace	*ice hockey*	de l'équitation	*horse-riding*
du patinage	*skating*	des randonnées	*for walks*
du roller	*roller skating*	Je trouve ça …	*I think it's …*
du vélo/cyclisme	*cycling*	bien/cool	*good/cool*
de la boxe	*boxing*	génial/super	*great/super*
de la danse	*dancing*	passionnant	*exciting*
de la musculation	*weight-lifting*	barbant/ennuyeux	*boring*
de la natation	*swimming*	nul/stupide	*rubbish/stupid*

La musique	Music		
Je joue …	*I play …*	Mon chanteur/Ma chanteuse préféré(e), c'est …	*My favourite singer is …*
du piano	*the piano*	car j'aime ses paroles/ses mélodies	*because I like his/her lyrics/tunes*
du saxophone	*the saxophone*	J'aime aussi la musique de …	*I also like …'s music.*
du violon	*the violin*	Ça me donne envie de …	*It makes me want to …*
de la batterie	*drums*	Ça me rend …	*It makes me …*
de la clarinette	*the clarinet*	J'ai téléchargé/acheté …	*I downloaded/bought …*
de la flûte	*the flute*	Je n'aime pas du tout la musique de …	*I don't like …'s music at all.*
de la guitare	*the guitar*	Je déteste …	*I hate …*
de la trompette	*the trumpet*		
de l'accordéon	*the accordion*		

La technologie	Technology		
Je fais …	*I do …*	Je vais sur mes sites préférés/ des blogs/des forums.	*I go on my favourite sites/blogs/forums.*
beaucoup de choses	*lots of things*	J'envoie des e-mails/mails.	*I send emails.*
des quiz/des recherches pour mes devoirs	*quizzes/research for my homework*	Je joue à des jeux en ligne.	*I play games online.*
Je fais des achats.	*I buy things/make purchases.*		

Films et télé	Films and TV		
J'aime/J'adore les …	*I like/love …*	Je préfère …	*I prefer …*
Je (ne) suis (pas) fan de …	*I am (not) a fan of …*	les documentaires	*documentaries*
Je n'aime pas …	*I don't like …*	les jeux télévisés	*game shows*
J'ai une passion pour les …	*I am passionate about …*	les magazines	*magazine programmes*
J'ai horreur des …	*I hate/can't stand …*	les séries	*series*
films de gangsters/d'action	*gangster/action films*	les actualités	*current affairs programmes*
films d'aventure/d'horreur	*adventure/horror films*	les émissions de musique/de sport/ de jeunesse/de télé-réalité	*music/sports/youth/reality TV programmes*
films d'arts martiaux	*martial arts films*	Mon émission préférée, c'est …	*My favourite programme is …*
films de science-fiction	*science-fiction films*	Je trouve ça …	*I find it …*
		Je pense que c'est …	*I think that it's …*

FRENCH Year 10 Topic 2: Le temps de loisirs

"If you believe you can achieve!"

Grammar

Comparative adjectives > Page 226

You use comparative adjectives to compare things:

plus + **adjective** + ***que***	more … than
plus simple que	more simple than
moins + **adjective** + ***que***	less … than
moins arrogant que	less arrogant than

The relative pronoun que > Page 232

Que means 'who', 'which' or 'that', when 'who', 'which' or 'that' is the object of a verb. It is very useful for creating longer, more complex sentences:

*J'y mets toutes les photos **que** j'aime et **que** je veux partager avec les autres.*

I put all the photos **which** I like and **which** I want to share with other people there.

The imperfect tense > Page 216

The imperfect tense is used to describe what things **were like** in the past or what **used to** happen.

*Avant, **je lisais** des livres, maintenant je lis sur mon écran.*

*Dans le passé, **nous lisions** les journaux, maintenant nous lisons la presse sur ordi.*

Parler de sport	***Talking about sport***	… et qui demande …	*… and which requires …*
Je fais de l'escrime/du footing depuis (quatre ans).	*I've been doing fencing/jogging for (four years).*	une excellente forme physique	*excellent physical condition*
Je pratique le trampoline depuis (trois mois).	*I've been trampolining for (three months).*	une bonne coordination	*good coordination*
On joue au basket ensemble depuis (trois ans).	*We've been playing basketball together for (three years).*	de l'endurance	*endurance*
J'aime beaucoup ça car c'est …	*I like it a lot because it's …*	de bons réflexes	*good reflexes*
élégant/facile	*elegant/easy*	Ça m'aide à décompresser.	*It helps me to relax.*
ludique/sympa	*fun/ nice*	Ça me fait du bien.	*It does me good.*
rapide/beau	*fast/pleasant*	Je préfère les sports individuels.	*I prefer individual sports.*
C'est un sport qui est bon pour …	*It's a sport that is good for …*	Je respire.	*I breathe.*
le corps/le cœur	*the body/the heart*	Je me fixe des objectifs.	*I set goals for myself.*
le mental/la concentration	*the mind/concentration*	J'oublie mes soucis.	*I forget my worries.*

Ma vie d'internaute	***My life online***	Je vais travailler avec mon ami/ma sœur/ mon prof …	*I'm going to work with my friend/ sister/teacher …*
Je suis passionné(e) de …	*I am passionate about/a huge fan of …*	car il/elle est plus/moins … que moi	*because he/she is more/less … than me*
photographie/cinéma/musique	*photography/cinema/music*	arrogant(e)/créatif/-ive	*arrogant/creative*
Il y a (deux mois), j'ai créé …	*(Two months) ago, I created …*	modeste/patient(e)	*modest/patient*
une page Facebook	*a Facebook page*	optimiste/organisé(e)	*optimistic/organised*
une chaîne YouTube	*a YouTube channel*	sérieux/-euse/technophobe	*serious/technophobic*
une station de radio	*a radio station*	Nous allons créer …	*We're going to create …*
un blog	*a blog*		
Ça (ne) marche (pas) très bien.	*It's (not) working very well.*		
J'ai beaucoup d'abonnés et de mentions «J'aime».	*I have lots of subscribers and likes.*		

La lecture	***Reading***	Maintenant/Aujourd'hui, les jeunes …	*Now/Today, young people …*
Quand j'avais X ans, je lisais …	*When I was X years old, I read …*	lisent des blogs/des textos/des tweets	*read blogs/texts/tweets*
J'aimais …	*I liked …*	passent tout leur temps sur leur portable	*spend all their time on their mobile*
Avant, avec mes enfants, on lisait …	*In the past, I read … with my children.*	Je trouve ça génial.	*I find that great.*
des histoires/des romans	*stories/novels*	Je trouve que c'est bien/mieux/un peu dommage.	*I find that it's good/better/a bit of a shame.*
des livres illustrés/classiques	*illustrated books/classics*	À mon avis, Internet a tué les joies de la lecture.	*In my opinion, the internet has killed the joy of reading.*
des livres pour enfants/des journaux	*children's books/newspapers*		
Maintenant, je lis …	*Now I read …*		
sur ma tablette/mon ordi	*on my tablet/my computer*		
sur Internet	*on the internet*		

FRENCH Year 10 Topic 2: Le temps de loisirs

"If you believe you can achieve!"

Grammar

Direct object pronouns > Page 230

A direct object pronoun replaces a noun that is the object in a sentence. It comes directly before the verb.

masc ('it')	*Je regarde* ***un documentaire***.	*Je* ***le*** *regarde.*
fem ('it')	*Je regarde* ***une série***.	*Je* ***la*** *regarde.*
pl ('them')	*J'aime* ***les documentaires***.	*Je* ***les*** *aime.*

Mon émission préférée est ***un jeu télévisé***.
Je ***le*** *regarde tous les samedis.*
My favourite TV programme is a game show.
I watch **it** every Saturday.

J'adore ***cette émission***.
Je ***la*** *regarde toutes les semaines.*
I love this programme.
I watch **it** every week.

J'ai horreur ***des émissions de télé-réalité***.
Je ***les*** *trouve totalement nulles.*
I hate reality TV shows.
I find **them** totally rubbish.

The superlative > Page 226

The superlative is formed as follows:

- the most … ***le/la/les plus*** + adjective
  l'acteur ***le plus*** *talentueux* — the most talented actor
  l'actrice ***la plus*** *élégante* — the most elegant actress
  les réalisateurs ***les plus*** *connus* — the best known directors
- the best … ***le*** *meilleur*/***la*** *meilleure*/***les*** *meilleurs*/***les*** *meilleures*
  les meilleures *photos* — the best photos
- the least … ***le/la/les moins*** + adjective
  la série ***la moins*** *intéressante* — the least interesting series

Note that the superlative comes before or after the noun, depending on where the adjective would normally come:

le festival le ***plus célèbre*** — the most famous festival
les ***plus grandes*** *stars* — the biggest stars

Mes émissions préférées	*My favourite TV programmes*		
Mon émission de télé préférée, c'est …	*My favourite TV programme is …*	Les acteurs sont excellents/ne sont pas crédibles.	*The actors are excellent/not credible.*
C'est (un docu-réalité) qui parle de …	*It's (a reality documentary) about …*	Le scénario n'a aucun rapport avec la réalité.	*The script has no connection to reality.*
Je le/la regarde …	*I watch it …*	Je le/la regarde en version originale.	*I watch it in the original language.*
toutes les semaines	*every week*	Avant, je regardais/nous regardions …	*Before, I/we used to watch …*
tous les jours/mois	*every day/month*	Maintenant, j'ai tendance à regarder …	*Now, I tend to watch …*
Je le/la trouve formidable/super/génial(e).	*I find it amazing/fantastic/great.*	en direct sur la TNT	*live on terrestrial TV*
Je ne le rate/manque jamais.	*I never miss it.*	en replay/streaming	*on catch-up/streamed*
Je ne le/la regarde jamais.	*I never watch it.*		
Je le/la trouve débile/vulgaire.	*I find it idiotic/crude.*		
J'adore les animateurs/animatrices.	*I love the presenters.*		

Le cinéma	*Cinema*		
Je suis passionné(e) de cinéma.	*I'm passionate/mad about cinema.*	de vanité	*vanity*
J'adore …	*I love …*	d'arrogance	*arrogance*
J'admire …	*I admire …*	Il/Elle est extrêmement modeste/sincère/humble.	*He/she is extremely modest/sincere/humble.*
Je suis fan de … depuis …	*I've been a fan of … since …*	J'ai vu le film … il y a un moment et depuis, je suis fan.	*I saw the film … some time ago and since then, I've been a fan.*
Il est le plus …	*He is the most …*	Apparemment, quand il/elle était jeune …	*Apparently, when he/she was young …*
Elle est la plus …	*She is the most …*	X compte parmi les acteurs les plus connus et les plus appréciés au monde.	*X is one of the best-known and most popular actors in the world.*
beau/belle	*good-looking, beautiful*	J'adore ses films et je les recommande.	*I love his/her films and I recommend them.*
intelligent(e)	*intelligent*	Je vais voir son prochain film très bientôt.	*I'm going to see his/her next film very soon.*
talentueux/-euse	*talented*		
élégant(e)	*elegant*		
doué(e)	*gifted, talented*		
célèbre	*famous*		
chic	*chic*		
Chez lui/elle, il y a très peu …	*With him/her, there is very little …*		
de prétention	*pretentiousness*		

Les mots essentiels	*High-frequency words*		
normalement	*normally, usually*	apparemment	*apparently*
quelquefois	*sometimes*	en général	*in general, generally*
souvent	*often*	de toute manière	*in any case*
tous les jours	*every day*	surtout	*especially*
hier soir	*yesterday evening*	en ce qui concerne	*with regard to*
récemment	*recently*	autant de	*so many*
depuis un moment	*for a while*	de plus en plus	*more and more*
lorsque	*when*	en dehors de	*outside (of)*
d'abord	*first(ly)*	ensemble	*together*
ensuite	*next*	notamment	*notably*
à mon avis	*in my opinion*	partout	*everywhere*
personnellement	*personally*	pas du tout	*not at all*
car	*because, as*	pour la plupart	*mostly*
cependant	*however*	tandis que	*while, whereas*

PE GCSE Paper 1 Topic 3 Physical Training Methods of training

"If you believe you can achieve!"

Glossary:
Aerobic or Anaerobic- you need to know which methods of training should be used to develop fitness for aerobic activities and which for anaerobic activities.

- **Continuous training** is aerobic and therefore used more for aerobic endurance-based activities. It involves exercising at a constant rate for at least 20mins with NO REST
- **Interval training** is used more for anaerobic activities. It involves high intensity exercise followed by either low intensity exercise or REST PERIODS

There are different types of training that athletes use to help improve their components of fitness.

1. Continuous training
2. Interval training
3. Fartlek training
4. Resistance or weight training
5. Circuit training
6. Plyometric training
7. Cross training

Fitness classes are also used to make training more social and fun.

1. Continuous Training

CHARACTERISTICS: Training that **does not have any rest periods**/breaks. It is completed at a **steady pace** and has to last for a **minimum of 20 minutes**.

BENEFITS: Non-stop exercise would help to **improve cardiovascular fitness** and **muscular endurance**.

SPORTING EXAMPLES: It would help improve **AEROBIC** fitness (*exercise with oxygen*).
Aerobic sports include **long-distance running**, **marathon** runners, **rugby** and **football** (*sports that last for a long time*).

HOW TO SHOW PROGRESSIVE OVERLOAD: You could make continuous training harder by increasing the amount of **time** (*more minutes of exercise*) or increasing the **intensity** (*running faster on a treadmill or cycling on a higher resistance level*).

Methods of Training (GCSE PE: Unit 1.1.4)

Continuous Training
Advantage- it`s easy to do- going for a run doesn`t require specialist equipment. No resting helps prepare for sports where you play for long periods of time without a break.
Disadvantage- it only involves aerobic activity so it doesn`t improve anaerobic fitness.
It can become boring .

Interval training
Advantage- it`s easily adapted to improve aerobic or anaerobic fitness by changing the intensity and length of work and recovery periods.
Disadavantage-
Interval training is exhausting. This can make it difficult to carry on pushing yourself.

Interval Training – Speed and CV

- Periods of hard work followed by periods of rest.
- Improves mainly speed, will also improve CV.
- High intensity and fast pace.

1 Rep = Sprint for 60m, rest for 30seconds
1 Set (of repetitions) = 4xruns and rest.

- 'Rest' might mean milder exercise e.g. 30m sprint 30m slow jogging.
- The 'Rest' periods give us time to recover.

Who uses it?
Sprinters (Athletics, Swimming, cycling)

PE GCSE Paper 1 Topic 3 Physical Training Methods of training 2

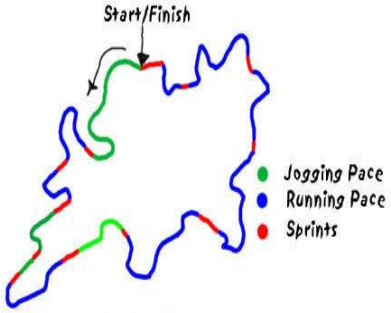
"If you believe you can achieve!"

Glossary:

Aerobic or Anaerobic- you need to know which methods of training should be used to develop fitness for aerobic activities and which for anaerobic activities.

- **Fartlek training-** is a form of continuous training. It`s key points are variations in pace and terrain covered.
- **Circuit training-**involves a chain of different activities or workstations that can be selected to suit individual or activity requirements. These workstations can be skill or fitness based or even a mixture. You can have interval based circuits or continuous based circuits.

Fartlek training- variations in pace and terrain. Sometimes flat ground sometimes up hill.



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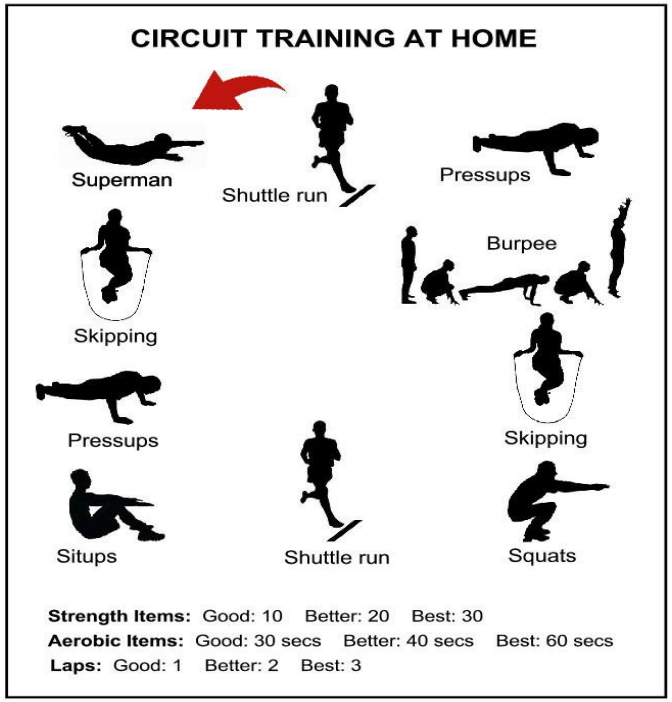
Fartlek training- involves changes of intensity of exercise over different terrain. E.g sprint/ jog then run up hill. It is good for cardiovascular fitness and muscular endurance and can also help speed.
You can mix aerobic and anaerobic activity, so it is good training for sports that need different paces such as hockey and rugby.

Overload is achieved by increasing the times or speeds of each bit, or terrain difficulty- eg. Running up steep hills.
Advantage- adaptable, you can tailor training to suit different sports and levels of fitness.
Disadvantage- different changes in intensity can mean training lacks structure. Easy to skip hard bits. Difficult to monitor progress.

Circuit Training- normally has between 6-10 workstations in it. At each station you do a specific exercise for a set amount of time before moving onto the next station.

- ✓ Can work aerobically or anaerobically- e.g skipping for cardiovascular fitness, triceps dips for strength, shuttle runs for speed.
- ✓ Overload is achieved by doing more repetitions at each station, increasing the time spent on each station, completing more circuits or shortening the rest periods between stations.
- ✓ Advantage- you can match the circuit training to an individuals needs or to a certain component of fitness. Varying skills or exercise stations keeps training interesting
- ✓ Disadvantage.- it takes a long time to set up and can require a lot of equipment and space.



PE GCSE Paper 1 Topic 3 Physical Training Methods of training 3

"If you believe you can achieve!"

Glossary:
Aerobic or Anaerobic- you need to know which methods of training should be used to develop fitness for aerobic activities and which for anaerobic activities.

- **Plyometric training-** any exercise that requires quickly stretching and contracting your muscles with maximal force. It develops explosive strength and power.

- **Weight / resistance training-** Means moving your muscles against a resistance. Often weights are used as the resistance but you can also use elastic ropes and your own body weight.(e.g press up or pull up)

Plyometric training involving jumping high and fast -on and off boxes. Ideal training for developing explosive power for volley ball, basket ball and high jump.

Weight/ resistance training

Plyometric Training- during movement, muscles can shorten or lengthen. If a muscle lengthens just before it shortens, it can help to generate power which is stored in the muscle.
This extra energy doesn`t last very long, so the quicker your muscles can move between the lengthening and shortening phases, the more powerful the movement will be.

Key points for Plyometric training.
- ✓ **Jumping / bounding usually over obstacles.(lower body)**
- ✓ **High intensity**
- ✓ **Short duration**
- ✓ **Breaks between sets**
- ✓ **Speed not endurance**
- ✓ **Examples- explosive press ups or catching and throwing a medicine ball. Develops upper body.**

Plyometric Training- (Anaerobic) can improve speed because you can switch quickly between lengthening and shortening muscles. E.g the anaerobic explosive off the blocks when sprinting.
Advantage- it`s the only form of training that directly improves your power.

Disadvantage- it`s very demanding on the muscles used- you need to be very fit to do it, otherwise you`ll get injured.

Weight/ resistance training- (Anaerobic)
- ✓ Develops strength/ power and muscular endurance
- ✓ To increase muscular endurance – use low weight but high number of repetitions.
(each completed movement is called a rep or repetition and a group of reps is called a set.
- ✓ To overload gradually increase the number of reps.
- ✓ To increase strength you use high weight but low number of reps. To overload gradually increase the weight being lifted but decrease the reps to avoid injury.
- ✓ Ideal for developing power and strength for sprinters, weight lifters, rugby players and shot put.
- ✓ Ideal for developing muscular endurance for activities such as long rallies in tennis.
- ✓ The muscles you wish to train can be targeted by doing specific exercise, for example biceps curls develop biceps strength.
- ✓ Increasing strength and power means you can hit or kick something harder (Football), throw further (javelin/ discus), sprint faster, out muscle an opponent (judo).

You can also resistance train by increasing the tension in a muscle, without changing the muscle`s length (so no movement) e.g a wall sit exercise, resistance band exercises - see diagrams
You overload by staying in the position for longer, or holding weights while you`re in the position.

Advantage- it`s easily adapted to suit different sports- you can focus on relevant muscles Many exercises such as press ups, sit ups require very little equipment.

Disadvantage- it puts muscles under high stress levels so can leave them very sore afterwards- discouraging you from continuing with further weight sessions.

PE GCSE Paper 1 Topic 3 Physical Training Progressive Overload/Specificity

"If you believe you can achieve!"

Glossary:

Progressive overload- means gradually increasing the amount of work in training so that fitness gains occur, but without the potential for injury.

Specificity- means matching the training to the particular requirements of an activity, not the person.

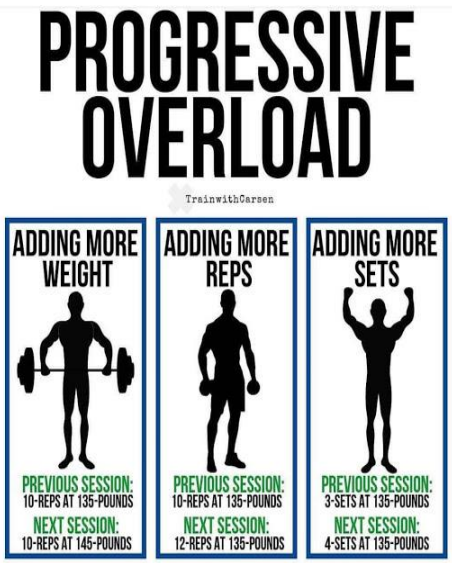
F= frequency- how often you train

I= intensity- how hard you train

T= time- how long you train for

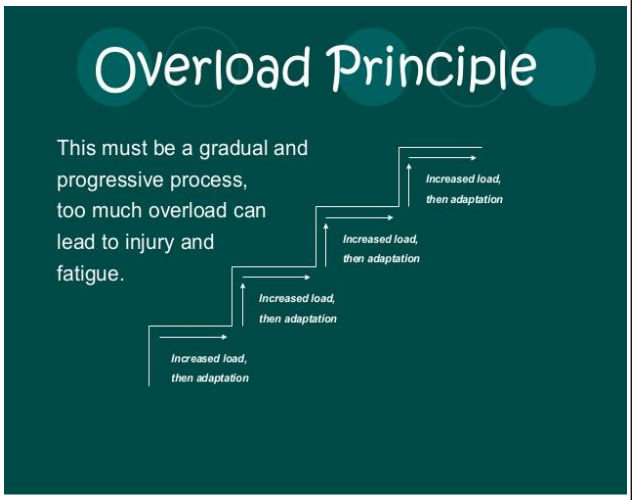
T= type- type of training method

Adaptations- your body will begin to change to cope with the increased exercise. These adaptations occur during rest and recovery.



Do not confuse principles of training with methods of training –

- Principles are the things you need to consider when planning your training programme.
- Methods are the ways you complete your training.



F I R S T O P

The principles you need to take into account when planning training are:-

F= FITT

I= individual needs

R= reversibility

S= Specificity

T= thresholds of training

O= overtraining

P= progressive overload

Athletes do often adapt their training.

A rower may use a rowing machine to replicate his movements on the water.

A cyclist may use a spinning bike.

A long distance runner may use a treadmill.

Progressive overload- means gradually increasing the work you do. For example, if you lift heavier weights, you will get stronger, therefore fitter because the body adapts to the new workload.

Often you need to give a definition and an example, a link between the progressive overload and why fitness increases.

How might you use progressive overload?

- Gradually increase the frequency of your training and how long you train for
- Gradually increase the intensity of your training.
- by adding more weight, doing more reps, completing more sets
- Wk1 +2 - working at 60% mhr
- Wk3+4- working at 70% mhr
- Wk5+6- working at 80% mhr

Specificity-

you must make sure that you are training for your sport. This is so that you are training the right muscles and body systems, rather than other areas of fitness that will have little impact on your performance.

e.g a long distance runner would complete many miles in running but rarely do weight training to avoid building up too much muscle mass. Likewise a shot putter would weight train to build powerful muscles but not do 10k runs. TRAIN THE RIGHT MUSCLES.

PE GCSE Paper 1 Topic 3 Physical Training Target zones Aerobic/Anaerobic

"If you believe you can achieve!"

Glossary:

Training within your target zone- To improve your aerobic and anaerobic fitness, you need to be training at the right intensity to maximise progress and fitness adaptations.
You do this by making sure that your heart rate is in a certain target zone or training threshold.

Lower training threshold- Aerobic Target zone- 60%-80% of your maximum heart rate. (beginners and low intensity activities)e.g long distance runners

Upper training threshold- Anaerobic Target zone 80%-90%- of your maximum heart rate. (elite performers and high intensity activities.- sprinters

Heart rate- the number of times your heart beats in 60 secs. It is measured in beats per minute (bpm)

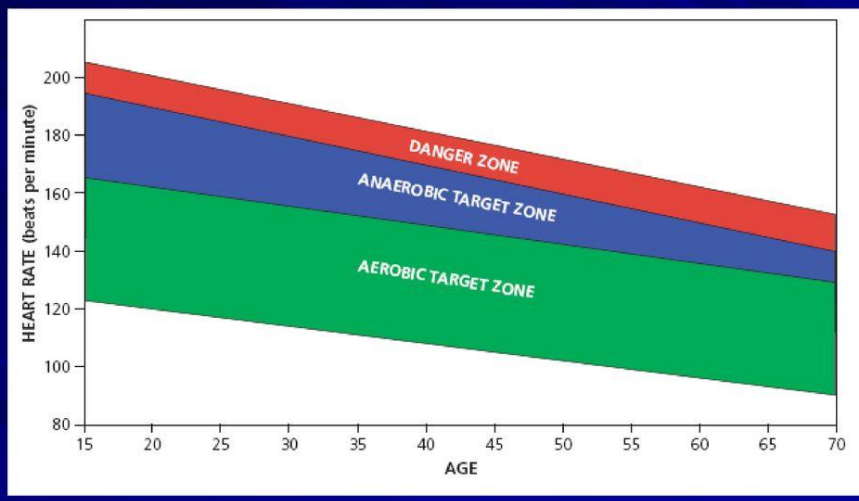
Maximum heart rate- is calculated using your age. 220- age = MHR

Resting heart rate- your normal heart rate bpm whilst resting. (no activity)- e.g adult male - 70 bpm

Recovery rate- how long it takes for your heart to return to resting heart rate after stopping exercising. (e.g 4 mins)

p.54

The following graph illustrates the exercise target zones



The simple Karvonen formula is used to estimate target zones. Aerobic target zone.

1. **220- age = MHR**
2. **-Then calculate 80% and 60% of your MHR. For example**

16 year old GCSE student.
220-16= 204 (MHR)
80 x 204 ÷ 100 = 163 bpm (80%)
60 x 204 ÷ 100 = 122 bpm (60%)

Anaerobic target zone
remember is between 80%and 90% MHR
220- 16 = 204
80 x 204 ÷ 100 = 163 bpm (80%)
90 x 204 ÷ 100= 184 bpm (90%)

5 mins

10 mins

10-40mins

40-80mins

20-40mins

Glossary:

Internal: Within the company
External: Outside of the **company**
Finance: How a company might finance growth
Profit: Revenue-**Total costs**
Assets: Something owned by the company
Loan : a method of borrowing, usually from the bank,

Sources of Finance

Selling Shares: Creating new shares that can be sold on the stock market

Retained Profit: Profit kept within the business that is not paid out in dividends to the shareholders. This source of finance is the best if the business wants to expand.

Bank Loan: This is an arrangement where the amount borrowed must be repaid over a clearly stated period, in regular instalments. The amount is paid back with interest.

Selling Assets: Selling items that the business owns to raise funds. For example, selling property or machinery.

Public Limited Company

A company that sells its shares on the stock market
This makes it much easier to raise finance but makes the business prone to

Glossary:
Aims: Long term goals within a business

Objectives: Short term goals used to help achieve the aims

Legislation: The laws set out a business needs to follow

Internal: Inside the company

Entrepreneur: Someone who comes up with a business idea/starts a business

Business Aims and Objectives
Business aims are the broad targets than an entrepreneur has at the back of their mind
Business objectives are clear, measurable targets of how to achieve business aims. (the stepping stones for how they are going to achieve them)

Smart Aims and Objectives
SPECIFIC - Objectives should **specify** what they want to achieve. - i.e. one named person is responsible for delivering the objective
M EASURABLE - You should be able to **measure** whether you are meeting the objectives or not.
A CHIEVABLE - can the objectives be met?
R EALISTIC - Can you realistically achieve the objectives with the resources you have?
T IMED - When do you want to achieve the set objectives? i.e. within a given period e.g. 12 months

Reasons for changes in Business Aims and Objectives

Influence	Description
Changing market conditions	Markets evolve over time. For example customers now want more luxury chocolate. As a result, Cadbury is now setting new objectives in relation to the luxury/higher prices segment of the UK chocolate market.
Changing technology	Due to advances in technology businesses have had to respond. For example Ted Baker's sales accelerated dramatically after introducing ecommerce. They were then more ambitious in their sales targets. With the help of ecommerce Ted Baker grew their whole business by 17.7% in 2016.
Changing performance	If costs start to rise, profits will be squeezed. This is linked to the performance of the business or it could be the industry as a whole. When this happens new objectives will need to be set to cut back costs to increase profits. A new manager will usually be appointed.
Changing legislation	Changes in legislation influence aims and objectives. Or example after Britain voted to leave the EU there was great uncertainty about what changes would be made to EU laws. Some may be beneficial, others not. This makes setting new objectives very difficult.
Internal reasons for change	Aims and objectives are influenced by a change at the top of the business. If a boss is pushed out and a new one is appointed there will be changes to aims and objectives.

BUSINESS STUDIES Year 10 Half Term 2: Globalisation

"If you believe you can achieve!"

Glossary:

Globalisation
Globalisation is the tendency for economies to trade increasingly with each other, cre-ating opportunities for international and multinational companies

Trade blocs: Agreements between countries to impose lower tariffs/no tariffs.

Marketing Mix: How a company finds out what the customer wants

Impact of Globalisation on Businesses
Imports: Globalisation allows businesses to be able to access wider markets, which increases the choice of suppliers. This allows businesses to find the cheapest supplier and lower their overall average costs
Competition from overseas: Due to the increased ability to operate in multiple countries it is now easier to move into new markets. This makes sales easier but also is likely to increase competition which can make smaller firms struggle.
Exports: Companies can now increase their number of sales by trying to sell their products over-seas, this can increase revenue for the business and help the government pay for the imports that are brought in.
Changing business locations: Some countries are cheaper to operate in than the UK because they have less laws in place or more raw materials on offer. Globalisation allows businesses to open factories in multiple countries to take advantage of the cheapest places, this lowers costs and al-lows businesses to maximise profits

Barriers to International Trade
Tariffs: These are taxes imposed on imported goods, this increases the cost of the import which may be passed onto the consumer in the form of higher prices.
Trade Blocs: This is an agreement between countries to trade freely with each other be-hind a tariff wall that discourages outsiders. This makes trade within the bloc cheaper and provides easier access to bigger markets whilst potentially reducing competition of non trade bloc countries. However it a company operates outside the trade bloc it is much more expensive to trade with all countries within the bloc

Marketing Mix to Compete Internationally
If a business is now operating in multiple countries it will need to adapt its 4 Ps to accommodate. Product will need to be adapted to fit with the laws in different countries e.g. H+S. Pricing may be different in different countries to account for popularity. Promotion will change based on what the country uses most, e.g. TV advertisement is much bigger in the US. Place will change based on the development of the country, e.g. ecommerce is popular in the UK but will be less popular in Africa, so companies will need to adjust their distribution channels.

How Businesses Compete Internationally
Use of internet and ecommerce: Small businesses are able to use the internet to access a much wider range of customers without the added cost of setting up physical shops in these countries. This makes it possible for small businesses to achieve global success on the back of one trend or even a short term fad. For larger businesses, the internet can help to lower costs and allows the business to become more dynamic.

COMPUTER SCIENCE Year 10 Half Term 2: Primary Memory

"If you believe you can achieve!"

Glossary:

Volatile Memory which requires constant electrical charge. If the power is turned off, then the data is lost

Non-volatile Memory which can retain its data when the power is turned off

RAM (*Random Access Memory)*

ROM *Read-Only Memory*

Cache Very fast memory, on, or very close to the CPU

Virtual Memory A section of the HDD which can be used as RAM for very memory intensive processes

Flash Memory A type of dynamic (changeable) ROM

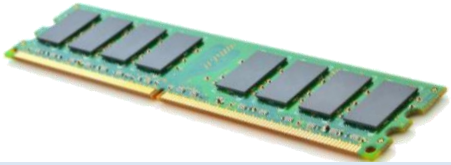
Boot Process The instructions needed to start the computer and to initialize the operating system.

POST *Power On Startup Test* A series of checks done on the hardware of the computer to ensure the machine can run.

Types of memory

Two types of memory used in computers are:

RAM



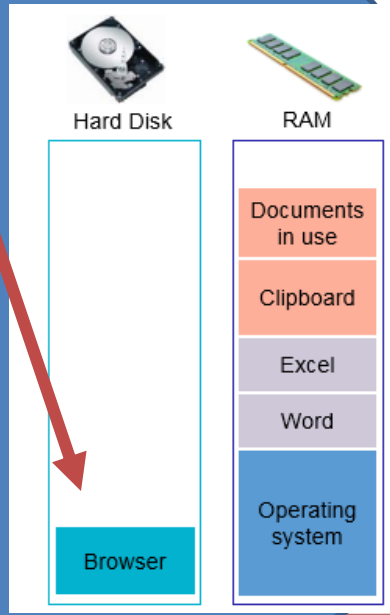
memory, which stores data in a single transistor and capacitor. This means it needs a constantly recycled charge to hold its data. If the power is turned off, it cannot refresh the data and it is lost. This is known as *DYNAMIC Memory*

ROM

The data is hardcoded onto the chip by the manufacturer, and cannot be overwritten by the user. Because it holds its information even when the power is turned off, this makes ROM ideal for storing the instructions needed to get the computer started up –the *BOOT PROCESS, and POST.*

Virtual Memory

To increase the speed and efficiency of RAM, most machines allocate a small portion of the Hard Disk to *VIRTUAL MEMORY.* The contents of the RAM are moved between the slower Virtual Memory and RAM as and when they are needed.



Advantages

Uses cheap secondary storage on the hard drive

Prevents error messages saying 'out of memory' – the programs and files will still open

Disadvantages

Accessing virtual memory is very slow

To access data, the existing data in RAM needs to be copied to the virtual memory, then data in virtual memory needs to be copied to RAM

Glossary:

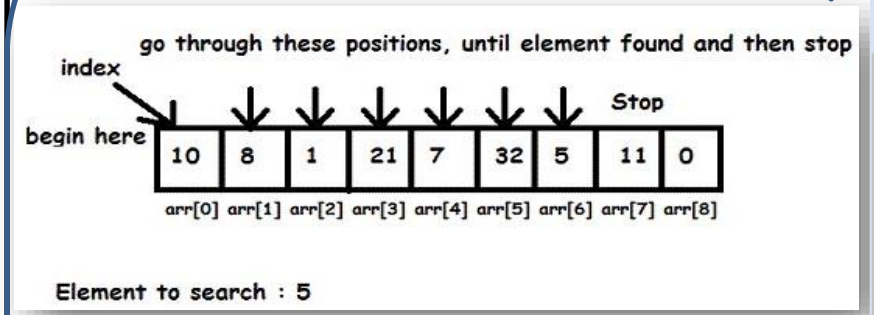
Algorithm
An abstracted program which completes a given task, whatever the data provided

Search
Searching is looking through data, making comparisons with a search term, until the algorithm either finds the data, or identifies that it is not present.

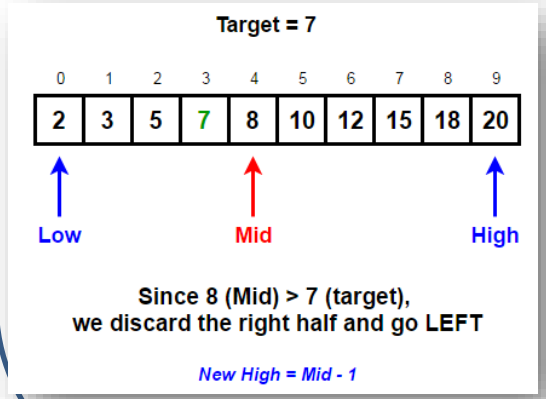
Linear Search A type of search where the computer checks every variable, in order, until it finds the search term. Potentially very slow.

Binary Search A search type based on repeatedly halving the searchable data, until the search term is found

Linear search *(can be used even when list is not in order)*



Binary search *(list has to already be sorted in order)*



Linear search versus binary search

	Advantages	Disadvantages
Linear Search	• Very simple algorithm and easy to implement • No sorting required • Good for short lists	• slow because it searchers through the whole list • very inefficient for long lists
Binary Search	• much quicker than linear search, because it halves the search zone each step	• The list need to be ordered

Glossary:

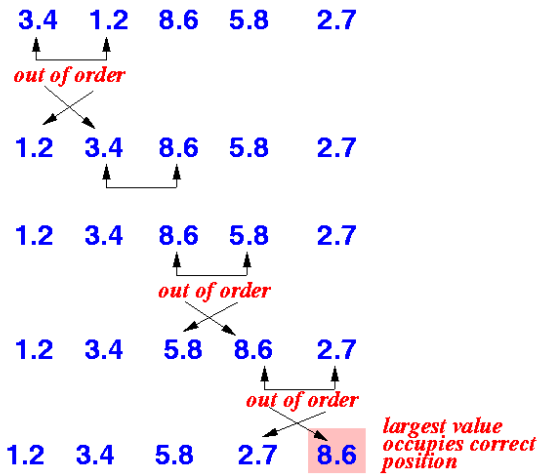
Sort- Putting given sets of data into specified order –usually ascending (alphabetical) or descending (reverse alphabetical

Bubble Sort-A method of sorting data which looks at pairs of variable, and swaps them around if out of order. This continues until there are no more swaps to be made

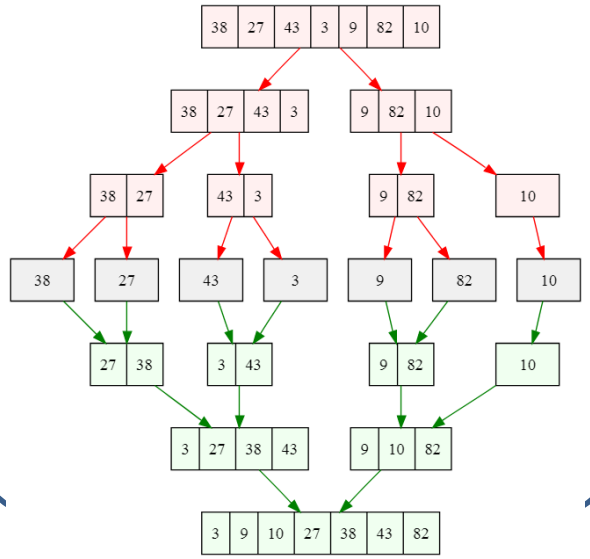
Merge Sort-Splits the data into increasingly small segments, until single data points are reached, then reassembles the data structure one item at a time.

Insertion Sort-Checks through the data until finding the first incorrectly places item. The algorithm then checks all the previous places to see where the data fits, before inserting it into this slot.

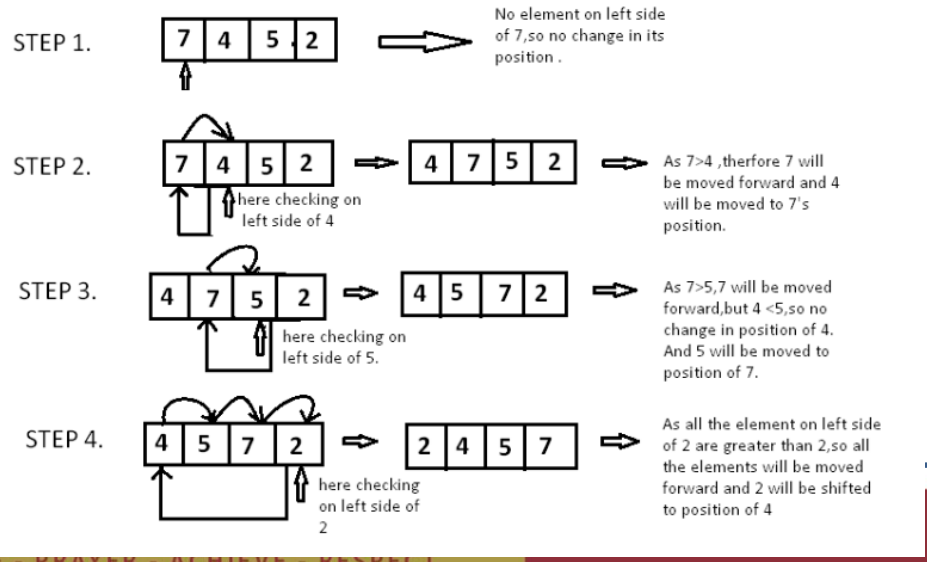
Bubble sort



Merge sort



Insertion sort



Glossary:

Overflow error- Where the denary value cannot be represented with the given number of bits.

Binary Shift -The method for multiplying and dividing numbers in binary. Is not necessarily mathematically correct

Most Significant Bit The left-most bit in a binary number –it has the highest value

Least Significant Bit The right-most bit in a binary number –it has the lowest possible value = 0 or 1

Check digit- An additional digit at the end of a string of numbers used to check for mistakes in transmission. ISBNs are formed of 12 bits for the item number, then the 13th is a check digit.

Adding in denary

```
 77896
+  123
 78019
   11  ← Carried bit
```

Adding in binary

```
 0    1    0    1
+0   +0   +1   +1
00   01   01   10
                ↖ carried bit
```

Binary addition rules

$0_2 + 0_2 = 0_2$

$0_2 + 1_2 = 1_2$

$1_2 + 0_2 = 1_2$

$1_2 + 1_2 = 10_2$ (carry 1)

$1_2 + 1_2 + 1_2 = 11_2$ (carry 1)

111000101

Most Significant Bit (leftmost bit) — Least Significant Bit (rightmost bit)

Over flow error-

The largest number 8 bits can represent is 255. if adding two binary numbers that total more than 255 then a 9th bit will be required Computers store things in a finite amount of space in memory. If the total goes over this amount of space then an **overflow error** will occur

```
 11111100
 00001111+
100001011
```

A 9th bit is required to represent this addition. If it doesn't fit an overflow error occurs

Binary shift

To multiply a binary number	Shift to the left

15

0	0	0	0	1	1	1	1

← If we shift 2 place to the left we get (i.e multiply by 4.)

60

0	0	1	1	1	1	0	0

To divide a binary number	Shift to the right

112

0	1	1	1	0	0	0	0

→ If we shift three places to the right we get (i.e divide by 8)

14

0	0	0	0	1	1	1	0

Glossary:

Risk assessment - A process of reviewing potential risks that could be involved in a project

Safe Working practices - Tell someone how to complete a task with minimum risk

Location Recce - Visiting a location to check it's suitability for filming prior to recording

Site or Location Recce	A visit to a specific location that will be used for recording purposes. **The purpose is to check access, see what is there, identify the best positions and assess environmental considerations**. May include: • Location • Access • Lighting • Health & safety issues • Availability of power • Environmental considerations • Any other issues
Risk assessment	Must be stored to cover you and any organisation that you work for in case of claims**.** **Helps to identify and minimise the risks.** • Identify hazards and dangers • Decide who might be harmed and how • Evaluate the risks and decide on precautions to be taken • Record findings and implement them • Review assessment and update if necessary

Health and Safety

Repetitive Strain Injury

RSI is a repetitive strain injury is an "injury to the musculoskeletal and nervous systems that may be caused by repetitive tasks, forceful exertions, vibrations, mechanical compression, or sustained or awkward positions.

Eye strain

Many people who use computers complain of eye strain. Looking at a monitor for a long time can strain your eyes or can make any other problems you are having with your eyes seem more noticeable. Symptoms include:
Eye discomfort; Headaches; Sore, tired, burning or itchy eyes; Difficulty focusing

Back ache

Sitting for long periods in front of a computer is storing up trouble. No matter how good your positioning, it is important to get up every so often.
seating posture
computer screen position
chair height
keyboard position
mouse position
desk equipment layout

How to avoid injuries consistent with long periods of computer use.

Make sure equipment is properly positioned.
Use chairs that can be adjusted to suit the height of the person using it and the desk they are working at.
Avoid glare from windows or lights on computer screens.
Take regular breaks.

iMEDIA Year 10 Half Term 2: Pre Production Documents

"If you believe you can achieve!"

Glossary:

File type:
A **file type** is a name given to a specific **kind** of **file**.

Hardware:
physical parts of a **computer** s ystem

Software: he programs and other operating information used by a computer

File types

You should be able to select appropriate file types for specific products and explain why you have chosen them.

Product	File types you could use
Video	WMV, MPG, MOV, FLV
Song	MP3, WAV, OGG VORBIS
Script	DOC, PDF
Poster	TIFF, PNG, JPG, PSD, PNG, GIF, BMP

Version control

Save the document according to file naming guidance/good practice.
Save a first draft version as
"(File name)_V_0.1"
Subsequent draft versions V_0.2, V_03, V_0.4
When a document is a final/approved version it becomes version V_1.0

Subsequent first versions V_1.2, V_1.3, V_1.4 ..
Approved versions will become 2.0

Hardware/Software

Hardware	Software
The devices and equipment that could used to create or digitise pre-production documents	*Types of applications installed on a device that could used to create or digitise pre-production documents*
• Computer system • Keyboard • Mouse • Graphics tablet • Microphone • Speakers • Monitor • Camera • Scanner • Pens/pencil/paper	• Microsoft Office Publisher – **used to create a mood board, storyboard, visualisation diagram** • Word – **used to create a script, storyboard** • PowerPoint – **used to create a mood board, visualisation diagram** • Web browser (IE, Chrome) • Dedicated software – mind map, Dreamweaver

iMEDIA Year 10 Half Term 2: Pre Production Documents

"If you believe you can achieve!"

Glossary:

Digitise - The process of converting documents into a digital format for a computer.

Hardware - Physical equipment that can be used e.g. Computer, Keyboard, Mouse.

Computer - This devices allows you to connect all of the other devices to it

Scanner – A scanner can be connected to a computer to let someone create a digital version of an image.

Camera – A camera is a very easy method of digitising pre-production documents at an acceptable quality.

Graphics tablet Graphics tablets allow a user to draw on a computer easier than using a mouse.

Hardware

Digitising means converting documents into a digital format for a computer.
The hardware required to make a document digital may include:

- Computer
- Scanner
- Camera
- Graphic Tablet

Legislation

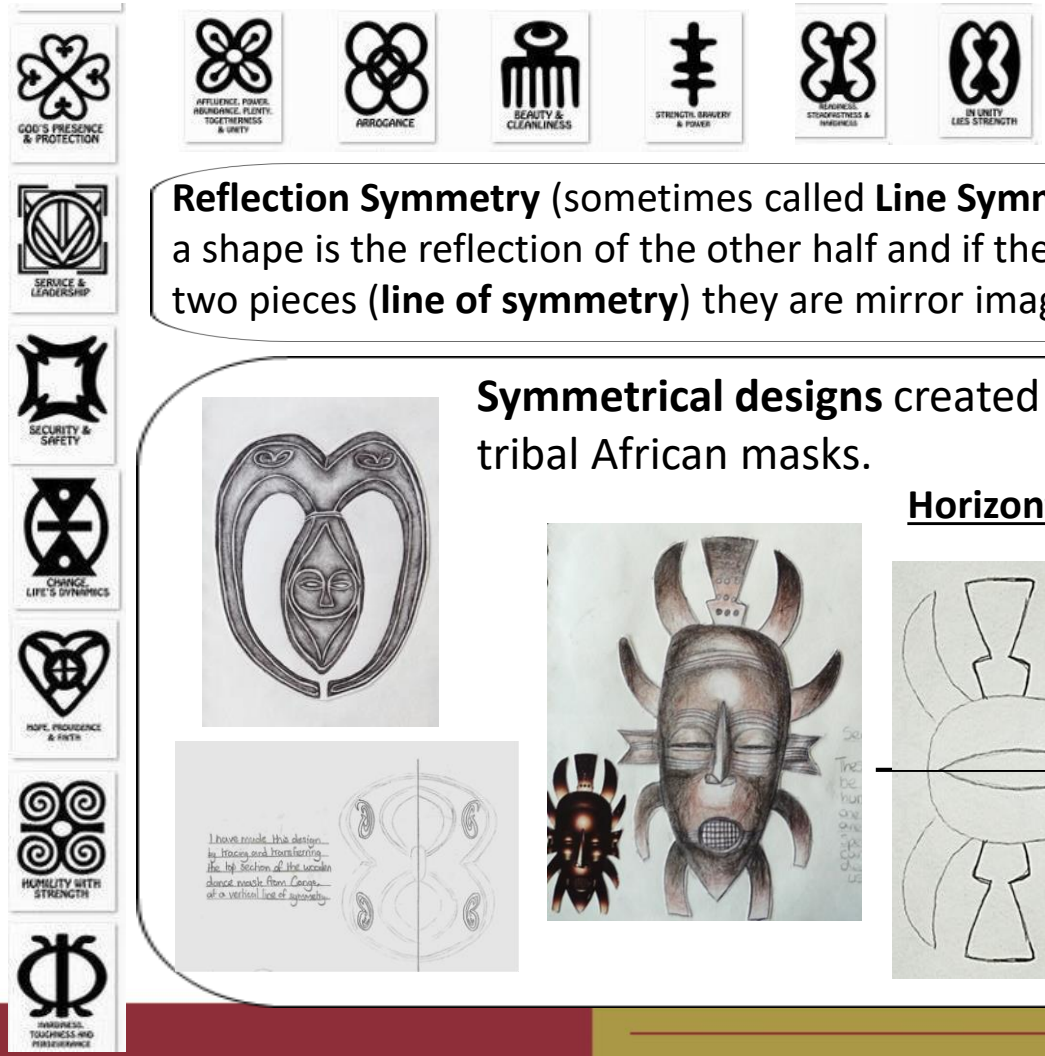
Intellectual Property	Series of laws e.g. copyright and trademarks that mean that you own the work that you produce
Copyright © **Trademarks ™ (logos)**	If its published it has copyright protection 'Published' includes books, magazines, music, movies, all content on the internet. To use a published resources you must: • Contact the owner • Ask for permission to use it • Often you will need to pay a fee
Copyright - Open licenses	Some people are happy for their products to be used by others but still want to have some protection. **Creative Commons:** A license agreement the creator chooses that lets you use that persons resources. However, you will still need to cite the source!
Certification or classification	Different countries have laws on what is allowed to be seen and shown. Certification is the process of informing the audience broadly on the suitability of content. Games and Films: PEGI: fear, violence, online, language BBFC: drugs, sex, horror, bad language

ART Year 10 Component 1: 2D Design Development- Symmetry

"If you believe you can achieve!"

Many artists, designers and crafts people have been inspired by Tribal African Art, artefacts and cultural traditions. From your studies of tribal African Art produce a piece of Art work showing a personal and meaningful response and cultural understanding.

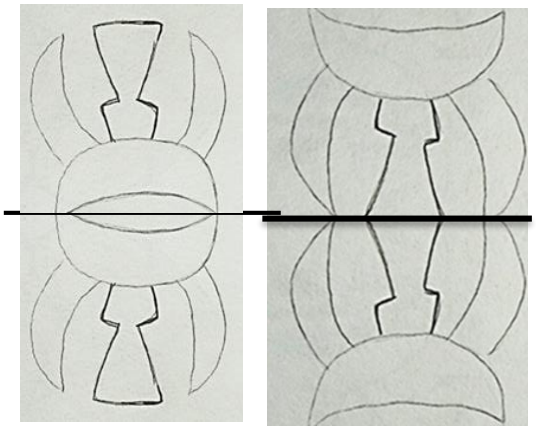
Symmetrical African masks, shields and symbols.



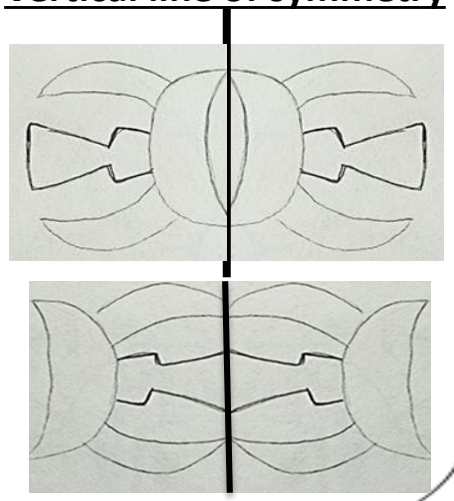
Reflection Symmetry (sometimes called **Line Symmetry or Mirror Symmetry)** is where one half of a shape is the reflection of the other half and if there is a line going through it which divides it into two pieces (**line of symmetry**) they are mirror images of each other.

Symmetrical designs created using shapes from research studies of tribal African masks.

Horizontal line of symmetry

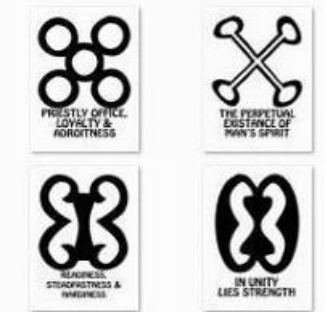


Vertical line of symmetry

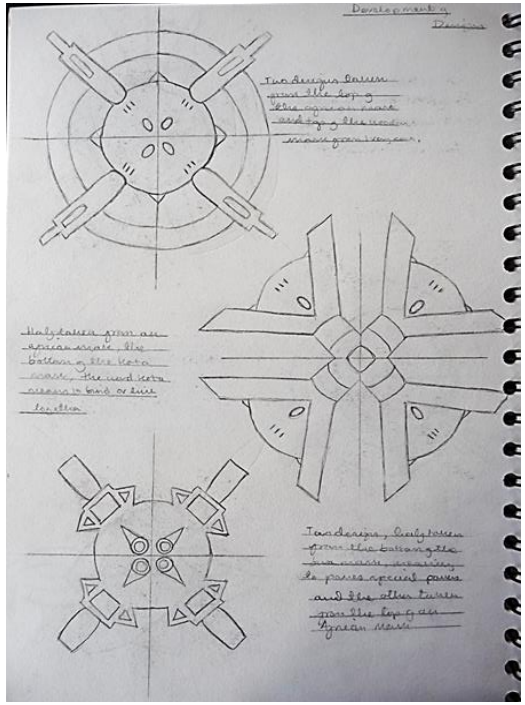


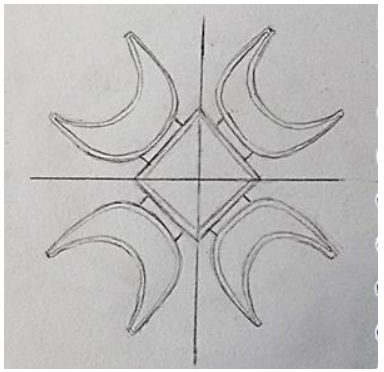
Rotational symmetry (or radial **symmetry**) is when an object is rotated in a certain direction around a centre point and the object appears the same. The order of **symmetry** is the number of positions the object looks the same in a 360-degree **rotation**.

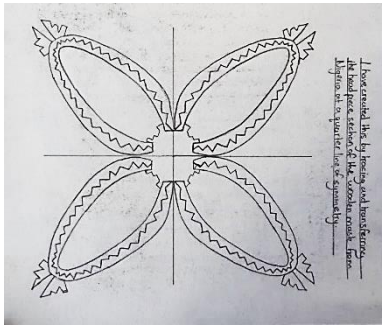
African symbols- Examples of rotational symmetry



Rotational symmetry- symmetrical designs created using shapes from research studies of tribal African masks.

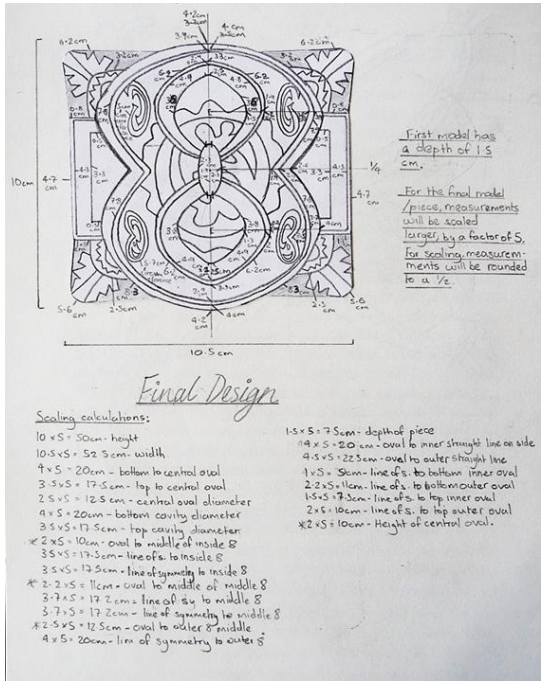






Scale is a design element which relates to size. **Scale** is the size of one object in relation to the other objects in a design or art work. A **scale model** of a building or object is a model of it which is smaller than the real thing but has all the same parts and features.

Development process from 2D design to 3D construction



Final design with measurements and scaled calculations.

3D model- paper

3D card construction

Colour symbolism is the use of colour as a representation or meaning of something that is usually specific to a particular culture or society. There is great diversity in the use of colours and their associations between cultures and even within the same culture in different time periods.

African Colour Symbolism

RED: Nigeria - Death, wealth and aggression. Some Areas: Good luck

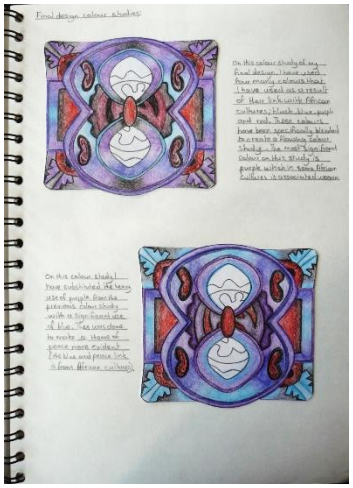
WHITE: Ethiopia – Illness and purity. **Nigeria**: Good luck and peace. **South Africa (Zulu):** Goodness**.**
Zambia: Goodness, cleanliness and good luck.
BLACK: Ethiopia - Impure, unpleasant and death.
YELLOW: Preciousness, royalty, wealth, spirituality, fertility and the sun.

BLUE: Spiritual, good fortune, peacefulness, harmony and love.

GREEN: Growth, fertility, prosperity, fruitfulness, abundant health and spiritual rejuvenation.
PURPLE: Symbolises healing. It is also associated with women. Purple cloths are mostly worn by females.

SILVER: Associated with the moon which represents the female essence of life. Often used in marriage ceremonies.

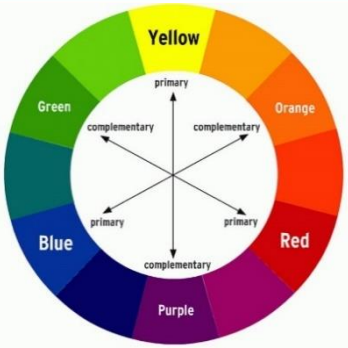
GOLD: Royalty, wealth, elegance, high status, supreme quality, glory and spiritual purity.



ART Year 10: African Art- Colour symbolism- Painted 3D piece

"If you believe you can achieve!"

Colour is the element in art of reflected light that is interpreted by the eye. **Colour** in art is based on colour theory, which is composed of three basic parts: the colour wheel **hue**, colour **value** and **colour schemes**.



Aesthetics, is a branch of philosophy that deals with questions of beauty and artistic taste. It is concerned with the nature and appreciation of beauty, what is considered aesthetically pleasing.

Painted African inspired pieces.

Monochromatic

Monochromatic colour schemes are derived from a single hue or colour and extended using its shades, tones and tints. Tints are achieved by adding white and shades and tones are achieved by adding a darker colour, grey or black.

Complementary/Contrasting

Complementary or contrasting colour schemes use colours which are opposite each other on the colour wheel. The high contrast of complementary colours creates a vibrant look especially at full saturation. This colour scheme must be managed well so it is not garish.

Harmonious/Analogous

Harmonious colour schemes use colours which are next to or near to one another on the colour wheel, eg; red, purple, blue. This creates a balanced, unified colour scheme.

Analogous colour schemes use groups of three colours that are next to each other on the colour wheel eg; red, red-orange, and orange. An analogous colour scheme creates a rich, monochromatic look

GRAPHICS Year 10 Half Term 2: In the News

"If you believe you can achieve!"

Graphic Design

- Art work that is produced to COMMUNICATE or EXPLAIN an idea, to a group of people.
- Graphic designers combine words, symbols and images to create a visual representation of ideas and messages.

Propaganda Posters

- Today, propaganda is commonly thought of to be false or misleading and the term is commonly used in a derogatory way. However, during WW1 & WW2 these posters were created to spreading ideas or information to further a cause.

Keep Calm and Carry On origins

- A motivational poster produced by the British government in 1939 in preparation for World War II. The poster was intended to raise the morale of the British public, threatened with air attacks on major cities. Although 2.45 million copies were printed, and although the Blitz did in fact take place, the poster was only rarely publicly displayed and was little known until a copy was rediscovered in 2000

'In the News' Design Brief

- Many artists, designers and art movements create artwork inspired by current and relevant topics in the news. Propaganda posters from the World War were used to encourage the public to conform. Russian constructivism came after WW1 to provide structure and like the London Underground Posters to educate the public and finally Banksy and Shepard Fairy design posters and art work to raise awareness of political views.
- Investigate appropriate resources and design a poster or piece of artwork that communicates a relevant topic that is in the news.

Examples of poster designs

GRAPHICS Year 10 Half Term 2: In the News

"If you believe you can achieve!"

Starting Point

We Can Do It!

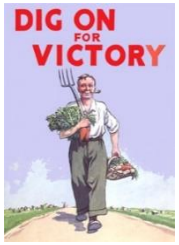
We Can Do It!" is an American World War II wartime poster produced by J. Howard Miller in 1943 for Westinghouse Electric as an inspirational image to boost female worker morale.

The poster was very little seen during World War II. It was rediscovered in the early 1980s and widely reproduced in many forms, often called "We Can Do It!" but also called "Rosie the Riveter" after the iconic figure of a strong female war production worker. The "We Can Do It!" image was used to promote feminism.

It's Our Flag

It's Our Flag Fight for it Work for it. A poster commissioned by the London Parliamentary Recruiting Committee in 1915. It appeals to the sense of patriotism of its audience, using the British flag as a symbol to encapsulate what needed protecting.

Dig for Victory

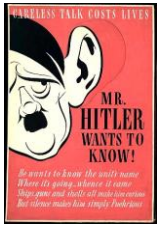


In October 1939 the Government launched 'The Dig for Victory' campaign. People were urged to use gardens and every spare piece of land, such as parks, golf clubs and tennis courts, to grow vegetables. Even the moat at the Tower of London was used to grow vegetables.

Briton Needs You

Lord Kitchener Wants You is a 1914 advertisement by Alfred Leete which was developed into a recruitment poster. It depicted Lord Kitchener, the British Secretary of State for War, above the words "WANTS YOU". Kitchener, wearing the cap of a British Field Marshal, stares and points at the viewer calling them to enlist in the British Army against the Central Powers. The image is considered one of the most iconic and enduring images of World War I. A hugely influential image and slogan, it has also inspired imitations in other countries, from the United States to the Soviet Union.

Careless Talk Costs Lives



Careless talk costs lives' was the slogan of a nationwide campaign to prevent people from gossiping and letting useful information get into the hands of the enemy. It was launched on February 6, 1940.

In a war, not only military secrets are of potential use to an enemy. Casual talk coming to the attention of enemy agents could result in military and civilian casualties by focusing action on specific targets.

GRAPHICS Year 10 Half Term 2: In the News- Secondary Artists

"If you believe you can achieve!"

Artists Link

Russian Constructivism-
An art movement that arose just after WW1 that was minimal and ordered. The artwork was produced to educate the public.

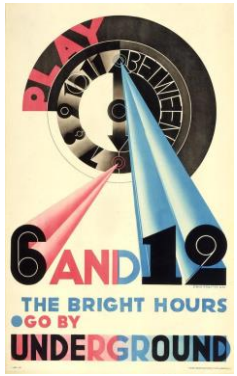
ABCDEFGHIJKLMNOP
QRSTUVWXYZabcdefg
hijklmnopqrstuvwxyz
0123456789
.,:;'"!?$%[/\]

Bauhaus Typography

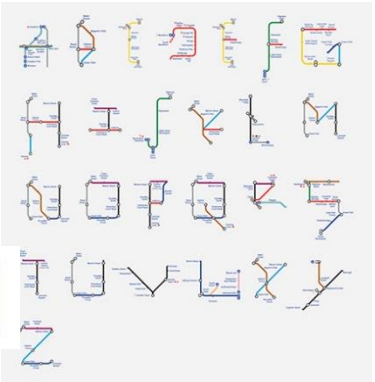
Bauhaus style of typography plays with layout, geometric shapes, vibrant colours, and sans-serif letters in upper case or lower case fonts that are simple but strong.

Artists

London Underground Posters-
Art on the Underground was introduced in 1986 by Henry Fitzhugh to revive London Transport as a patron of the arts: the Underground commissions six works a year.



Typography



Artists Link

Banksy-

Banksy is a British street and graffiti artist. He likes to remain anonymous and not let people know his true identity. He often draws in high visibility public places such as on buildings or train stations. His paintings are often about politics, war and other important topics.

Typography

Artists

Shepard Fairey-

Frank Shepard Fairey is an American contemporary street artist, graphic designer, activist, illustrator, and founder of OBEY Clothing

Typography

MUSIC GCSE Year 10 GCSE Half Terms 1 and 2:

"If you believe you can achieve!"

Component 1 –Understanding Music – AoS 2Popular Music

Music of Broadway 1950s to 1990s
Rock Music of 1960s and 1970s
Films and computer gaming music 1990s to present

Component 1 –Understanding Music – AoS2 Popular Music

Study works – Sgt Pepper's Lonely Hearts Clun Band – Lucy in the Sky with

- Structure
- Instrumentation
- Key signatures
- Time signatures
- Metre
- ADT
- Melody
- Harmony

- **Component 3 – Composition - Compositional devices:**

Rhythm and Metre
e.g. simple time/regular tempo/semibreves/minims/crotchets/quavers
Texture and melody
e.g. single line melody/unison/octaves/homophonic texture/riff
Structure and form
e.g. binary/ternary/strophic/ground bass/popular song form/twelve bar blues
Harmony and Tonality
e.g. major and minor chords/perfect and imperfect cadences/major tonality/pedal
Timbre and dynamics
e.g. single and/or group instrumental/vocal or synthesised/computer generated sounds/balance in dynamics
Phrasing and Articulation
e.g. legato/staccato/slurring

Component 2 – Performance

- Preparation of solo performances – either one or more pieces of up to 2 minutes focusing on exam board criteria
- Preparation of ensemble performances – either one or more pieces of up to 2 minutes focusing on exam board criteria

Criteria for each performance:
Level of Demand
Technical control – accuracy of pitch, rhythm, intonation and fluency
Expression and articulation – ability to demonstrate expression and interpretation and sense of style appropriate to the piece and as directed by the composer

MUSIC GCSE Year 10 GCSE Half Terms 1 and 2:

"If you believe you can achieve!"

Glossary:

- **Melody**

Riff – a short repeated phrase
Pitch – high/low
Melisma – a group of notes sung to one syllable of a text
Hook – a short musical idea repeated to be catchy
Slide – rapid run of notes
Glissando – glide from one pitch to another
Improvisation – spontaneous – without prior preparation
Ostinato – a continually repeated musical phrase or theme
Blue notes – flattened 3rd, 5th and 7th notes

- **Harmony**

Power chords- root, 5th and 8ve
Chord symbols – Key and roman numeral (C/I)
Chord progressions – order of chords – e.g. I, IV, V, VI

- **Tonality**

Pentatonic – 5 notes per octave
Modal – diatonic scales which are neither major or minor – associated with the 8 church modes
Blues scale – including blues notes – flattened 3rd, 5th and 7th

- **Structure**

intro-/outro – beginning or ending
Verse – music the same – change of lyrics
Chorus – music and lyrics the same
Break – instrumental or drum solo
12 bar blues – 12 bar format using chords I, IV and V
Drum fill – short break in the groove – filling in the gaps

- **Sonority/Timbre**

band instruments – typically used in Pop bands
Specialist instruments – more traditional e.g. sitar/diruba
Instrumental techniques:
Palm mute – muting strings with palm near the bridge
Pitch bend – changing the pitch electronically
Hammer-on – changing the pitch by applying pressure on a fret
Pull-off – changing the pitch by removing fingers from the fret board
Slide guitar/bottleneck – steel tube placed over multiple strings to produce a smooth sound
Drum kit components:
Rim shot – striking the rim of the drum and the head at the same time
Rim click – striking the rim of the drum whilst dampening the skin
Vocal timbres:
Falsetto – singing outside the normal vocal range
Belt – a controlled yell
Rap – emphasising rhyme and rhythm
Beat-boxing – vocal percussion
Scat singing – improvisation with wordless syllables
Instrumental techniques:
Slap bass – producing percussive sound on string instruments
Instrumental effects:
Distortion – increasing the gain on amplified sounds to sound fuzzy
Amplification – increasing the signal and volume
Recording techniques:
ADT – Automatic double tracking – enhances tracks by delaying the original copy
DIT – Direct Input Transformer – improves sound quality

Tempo, metre and rhythm:

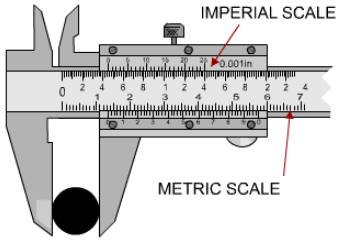
Bpm – beats per minute
Mm – metronome marking
Groove – a pronounced enjoyable, repeated rhythm
Backbeat – a strong accent on a normally unaccented beat of the bar
Syncopation – stressing the normally unaccented beats
Off-beat – weak beats
Shuffle – rhythm based on triplet subdivision
Swing/swung – dotted rhythm typical of jazz

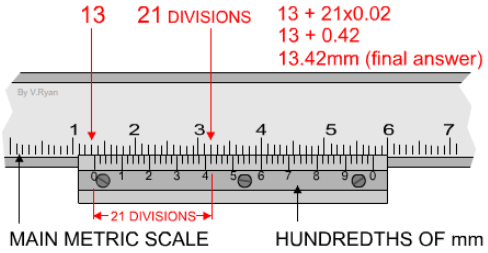
ENGINEERING Year 10 R110

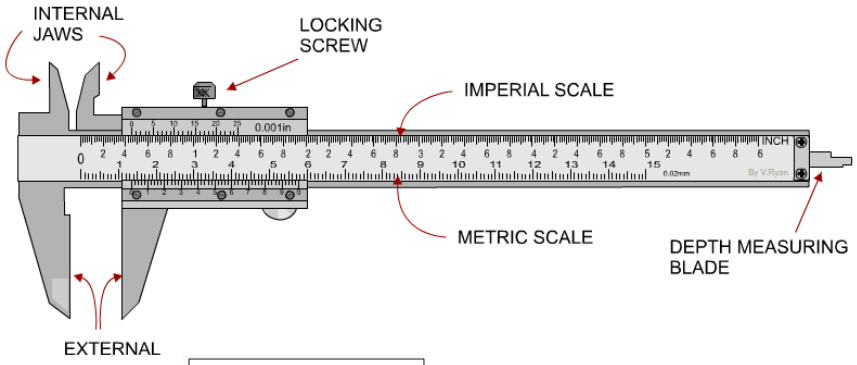
"If you believe you can achieve!"

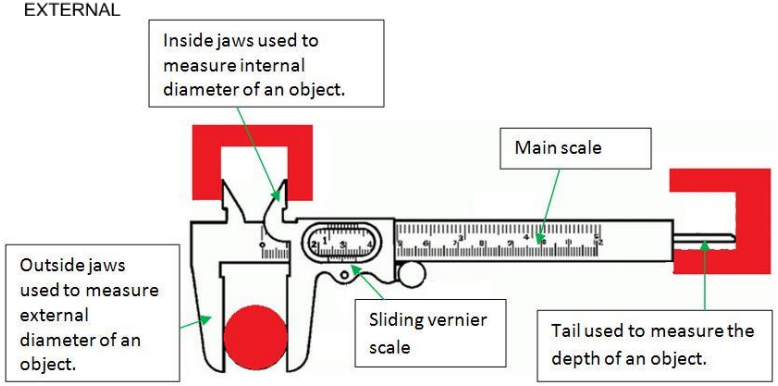
Precise measuring tools (Vernier Calipers)

The **Vernier caliper** is an extremely precise measuring **instrument**; the reading error is 1/20 mm = 0.05 mm. Close the jaws lightly on the object to be **measured**. If you are measuring something with a round cross section, make sure that the axis of the object is perpendicular to the **caliper**.

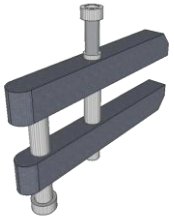








R110 Assignment Theory: Tools Makers Clamp



Metal working tools

Metal scribe

Metal punch

Engineers square

Hack saw

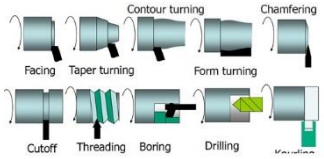
Junior hacksaw

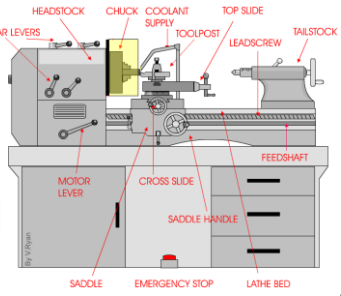
Tapping a Thread

Find out the correct hole size to drill for the thread you wish to tap:
standard metric tapping drill sizes:
M4 - tapping drill 3.3mm
M5 - tapping drill 4.2mm
M6 - tapping drill 5.0mm
M8 - tapping drill 6.8mm
M10 - tapping drill 8.5mm
M12 - tapping drill 10.2mm

Centre Lathe

The Centre Lathe is used to manufacture cylindrical shapes from a range of materials including; steels and plastics. These may be lathes operated directly by people (manual lathes) or computer controlled lathes (CNC machines) that have been programmed to carry out a particular task.



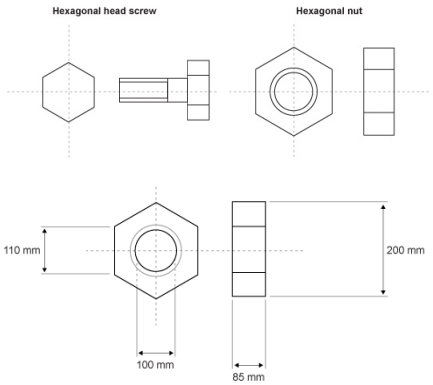


ENGINEERING Year 10 R110

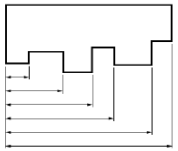
"If you believe you can achieve!"

Adding detail to Engineering drawings

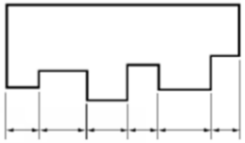
- **Extension lines** are parallel lines that extend out from two points on the drawing. A small break should be added where the extension line meets the drawing.
- **Dimension lines** are drawn with an arrow on either end between two extension lines, with the dimension written alongside. The unit of measurement should also be given.



Parallel dimensioning

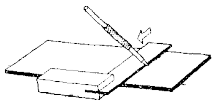


Chain dimensioning



Producing a Production Plan

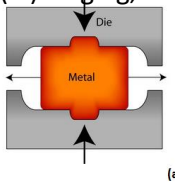
Stage	Manufacturing Operations/ Process	Tools/ Equipment/M aterials	H+S/ Risk	QC Check	Time
Stage number or type of process.	Detail of step, engineering processes and general detail.	Specific tools and machinery used.	What could happen/ potentiall y happen.	What checks you do to make sure it is done well.	How long did it take?

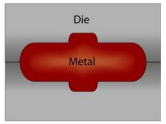


Metal forming processes

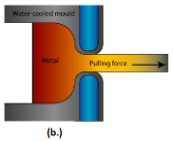
Bulk metal forming process include

(a.) forging,

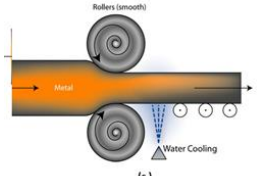




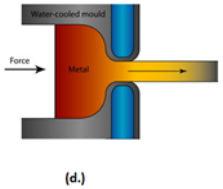
(b.) drawing,



(c.) rolling



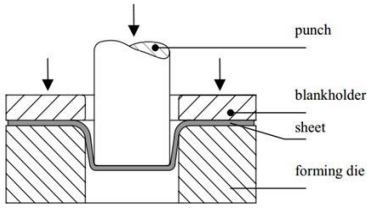
(d.) extrusion.

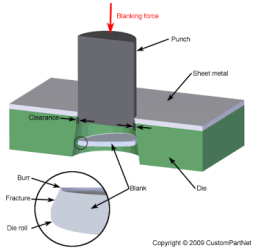


Shaping is an important step for turning raw materials, metals and alloys into semi-finished stock and finished parts.

Sheet metal forming processes are those in which force is applied to a piece of **sheet metal** to modify its geometry rather than remove any material. The applied force stresses the **metal** beyond its yield strength, causing the material to plastically deform, but not to fail.

Punching is a forming process that uses a **punch** press to force a tool, called a **punch**, through the workpiece to create a hole via shearing. **Punching** is applicable to a wide variety of materials that come in **sheet** form, including **sheet metal.**





Advantages of pressed metal: High strength in thin parts that can have complex shapes and for a 'reasonable' price. Easy to make parts in different colours and finishes (plated and painted).

ENGINEERING Year 10 R110

"If you believe you can achieve!"

H+S/ Workshop safe working practices

Safe work **practices** are generally written methods outlining how to perform a task with minimum risk to people, equipment, materials, environment, and processes.

Precautions

A measure taken in advance to prevent something dangerous, unpleasant, or inconvenient from happening.

PPE

Personal protective equipment is protective clothing, helmets, goggles, or other garments or equipment designed to protect the wearer's body from injury.

PPE can be considered in the following categories:

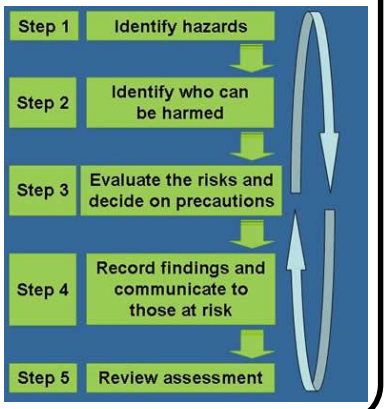
Respiratory protection - for example, disposable, cartridge, air line, half or full face
Eye protection – for example, spectacles/goggles, shields, visors
Hearing protection – for example, ear muffs and plugs
Hand protection – for example, gloves and barrier creams
Foot protection – for example, shoes/boots
Head protection – for example, helmets, caps, hoods, hats
Working from heights - for example, harness and fall arrest devices
Skin protection – for example, hats, sunburn cream, long sleeved clothes

Risk assessment

Risk assessment is a term used to describe the overall process or method where you: Identify hazards and **risk** factors that have the potential to cause harm (**hazard** identification). ... Determine appropriate ways to eliminate the **hazard**, or control the **risk** when the **hazard** cannot be eliminated (**risk** control)

What are the five steps to risk assessment?

Likelihood	Severity				
	Trivial	Minor Injury	Over 3 Day Injury	Major Injury	Incapacity or Death
Highly Unlikely	1	2	3	4	5
Unlikely	2	4	6	8	10
Possible	3	6	9	12	15
Probable	4	8	12	16	20
Certain	5	10	15	20	25



Engineering Drawings

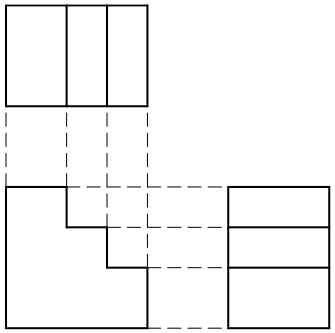
An engineering drawing is a type of technical drawing used to define the requirements for engineering products or components. It is usual for engineering drawings to include a series of projections showing different angles of the item.

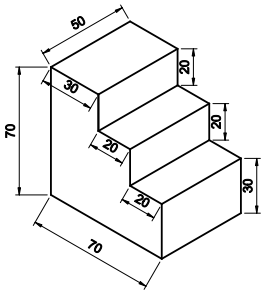
2D Orthographic projection

A method of projection in which an object is depicted using parallel lines to project its outline on to a plane.

Isometric 3D drawing

Plan View (Top)



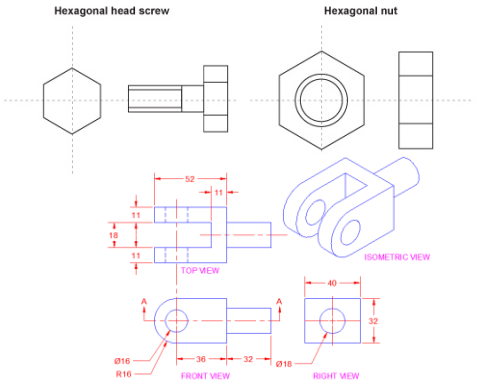


Front View

End View (Side)

Drawing Conventions: Adding detail to Engineering drawings

- Conventions are ways of doing things which conform to a common standard, for example, technical drawings. Using conventions saves time and ensures that a drawing means the same thing to anyone who sees it. The BSI standard for drawings is BS8888.
- The illustration below shows two drawings conforming to BS8888 specifications.



3D DESIGN Year 10 – Manufacturing Methods

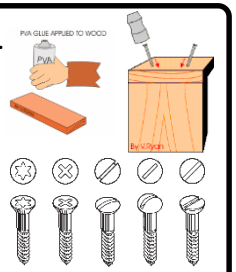
"If you believe you can achieve!"

Manufacturing Aids

Screws - Screws are temporary and can be removed.

P.V.A. (Polyvinyl Acetate) Glue - These are very popular as they do not need preparation. These glues are permanent fixing methods.

Nails - Nails are permanent and when removed ruin the materials. They can also be used with PVA for a stronger join. Without PVA they can work loose.



QC Quality Control
To check how well made a product is at a specific stage in its manufacture against success criteria

QA Quality assurance
To check the quality of tools, equipment and materials. Before, during and after a products manufacturing process.

Manufacturing Aids

- **Formers:** A construction used to help with shaping operations e.g. laminating, vacuum forming, acrylic bending, felt blocking, dressmaker's dummy, drop moulding.
- **Jigs:** A device you line material up to accurately repeat an operation accurately time after time e.g. for sawing, cutting, drilling, punching. Jigs are lined up and left on the material while you perform the appropriate making stage.
- **Templates:** A shape made from a durable material which can be lined up and drawn/cut around to reproduce the original shape e.g. dress pattern, cake decoration, sheet metalwork, block pattern.

Tools and Equipment:
Tenon saw, coping saw, plane, chisel, marking gauge, try square, glass paper, emery cloth, pillar drill, disc sander, hand sander, hand vice, g-clamp, mallet, bench hook.

Frame joints

Strong, permanent and neat-looking joints in timber are achieved using one of the many types of **frame joint**. Frame joints are right-angled jointed frames common in furniture, boxes and many other types of assembly.

Simple frame joints

Some simple frame joints

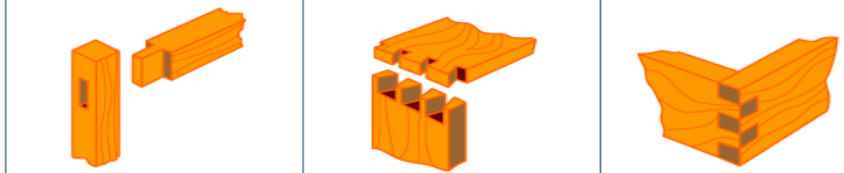
The simplest frame joint is a **butt joint**. It is easy to make, but weak. You can strengthen a butt joint by fixing a reinforcing plate over the joint.

A butt joint can also be strengthened by gluing dowel into both parts - making a **dowelled joint**. Dowelled joints are good for joining man-made boards (modified timbers) which might split easily if screwed or nailed.

Corner halving joints are stronger than butt joints, as there is more contact for gluing, and the *shoulder* gives extra mechanical strength. **Through housing joints** are used for shelves.

More complex frame joints

More complex frame joints



Mortise and tenon joints are very strong, because of the shoulders. If your joint is close to the end of a piece of wood, use a *haunched* mortise and tenon joint.

Dovetail joints are very strong and look good - but are complex and difficult to cut. They are often used in high-quality furniture.

Comb or box joints are easier to make and offer good contact for gluing. They are often used in wooden boxes.

PHOTOGRAPHY Year 10

"If you believe you can achieve!"

Key Elements

COLOUR

Colour is very important! It creates the mood of the photo and can portray the emotion

LINE

Lines can show the distant between two points. Lines can be **straight** or **curved**, **thick** or **thin** and **soft** or **hard**.

Lines can create **perspective** and are used as focal points to draw attention.

SHAPE

This can be any closed shape. It doesn't't matter if it's a bird, or a plane, or superman, it is a two-dimensional representation of something we recognize.

FORM

Form refers to when shape takes in three-dimensions (3D).

Form is created by shadows and highlights on an object in the photograph.

TONE

Tone is the lightness and darkness of the photograph.

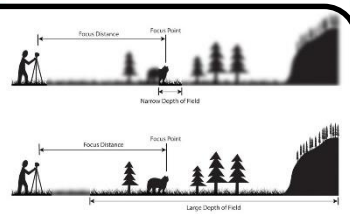
Tone can create distance, depth and emotion

TEXTURE

Texture is used to give the idea of what it might feel like.

Brings life and vibrancy to the images that would otherwise appear flat and uninspiring.

Depth of field is the distance between the closest and farthest objects in a photo that appears acceptably sharp. Now, your camera can only **focus** sharply at one point. The illustration shows what is meant by a **narrow** and **large** DoF. In a photograph with a narrow DoF, only a small slice of the image is in focus. Conversely, with a large DoF, much more of the scene is sharp.



Composition describes placement of relative objects and elements in a work of art. Composing an image means arranging elements within it in a way that suits the core idea or goal of your work best. **Arranging** elements can be done by actually moving the objects or subjects. A good example for this case is portrait or still life photography. Street photography involves anticipation, since the photographer doesn't usually have the choice of moving his subjects himself, but has to wait for them to take the most suitable position within the frame. Another way of arranging elements is by changing your own position. Such a way is appropriate in circumstances that do not allow the photographer to physically move anything, like landscape photography.

SHUTTER SPEED

In photography, shutter speed or exposure time is the length of time when the film or digital sensor inside the camera is exposed to light, also when a camera's shutter is open when taking a photograph. The amount of light that reaches the film or image sensor is proportional to the exposure time. $1/500$ of a second will let half as much light in as $1/250$.

ISO

In Digital Photography ISO measures the sensitivity of the image sensor. Higher numbers mean your sensor becomes more sensitive to light which allows you to use your camera in darker situations. The cost of doing so is more grain

APERTURE

Aperture can be defined as the opening in a lens through which light passes to enter the camera. It is an easy concept to understand if you just think about how your eyes work. As you move between bright and dark environments, the iris in your eyes either expands or shrinks, controlling the size of your pupil.

In photography, the "pupil" of your lens is called aperture. You can shrink or enlarge the size of the aperture to allow more or less light to reach your camera sensor.

A large aperture (a wide opening) will pass a lot of light, resulting in a brighter photograph. A small aperture does just the opposite, making a photo darker. Take a look at the illustration below to see how it affects exposure: