



The John of Gaunt School  
A Community Academy

Name

TG

*Year 11*

*Knowledge Organisers*

*Term 1 - 2025*

# Astronomy GCSE. Term 1 : Exploring the Solar

The four **Gas Giants**;  
**Jupiter diameter  $143 \times 10^3$  km**  
**Saturn diameter  $121 \times 10^3$  km**  
**Uranus diameter  $51 \times 10^3$  km**  
**Neptune diameter  $50 \times 10^3$  km**

They are relatively much larger, with **liquid interiors** and atmospheres of hydrogen and helium with small amounts of methane and ammonia. **See the main section of the diagram for distances from the Sun.**

The four **Terrestrial planets**;  
**Mercury diameter  $4.9 \times 10^3$  km**  
**Venus diameter  $12.1 \times 10^3$  km**  
**Earth diameter  $12.8 \times 10^3$  km** and  
**Mars diameter  $6.9 \times 10^3$  km**

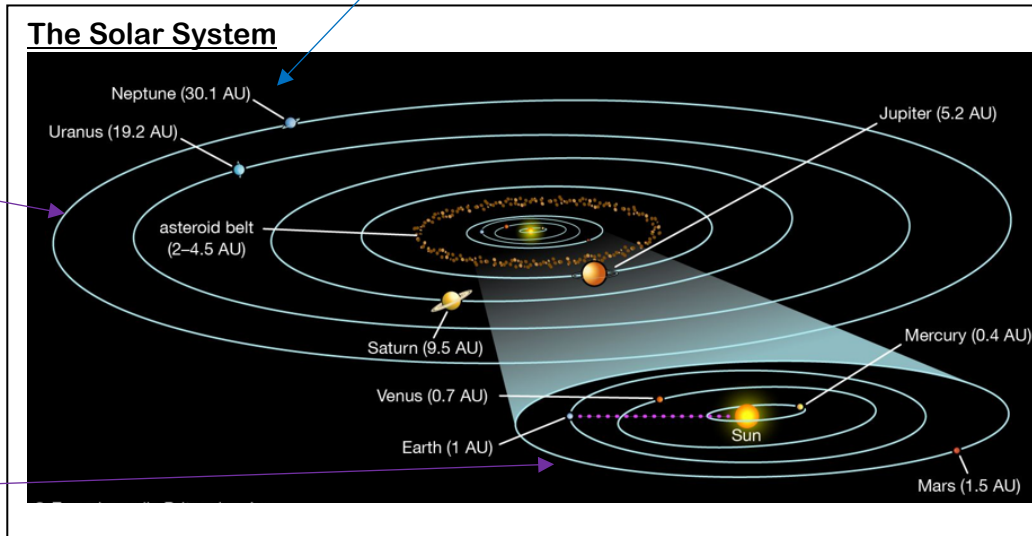
These are relatively small planets made of rock surrounding iron cores. They follow nearly circular orbits, roughly in the same plane and travel in the same direction. **See the expanded section of the diagram for distances from the Sun.**

## Space Probes. Four main types of probe:

- Fly-by** missions where probes may view several targets.
- Orbiters**-a probe enters orbit around a planet or asteroid to map the surface.
- Impactors**-probe deliberately impact the surface of an object to study the internal composition.
- Soft landers**- probe touches down intact with equipment eg a rover, to study the surface and sometimes analyse the materials.

**Key words: ALL words in bold need to be learnt.**

Size of the **Solar System** and **units of measurement**. The units that are used (m and km). **Distances within the Solar System** are stated in **Astronomical Units or AUs**, defined as equal to the mean distance between the Earth and the Sun.



## Meteoroids:

- Dust, grit-sized rocks, chunks of rock, boulder-sized mixtures of ice, stone and metal in orbit around the sun.
- Speeds range from 20-70 km/s.
- May enter the Earth's atmosphere, where air resistance transfers **KE to thermal energy**. Small particles become **incandescent (emitting light due to being heated)** -called a 'shooting star' or **meteor**.
- When the Earth passes through a **meteoroid stream** (may be left after a comet has passed) and many occur at once, this is a **meteor shower**. It appears to radiate from a point, the **radiant** and is **named after the constellation** in which the radiant lies.

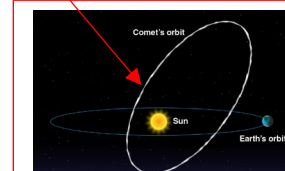
**Fireballs: Very bright meteors** produced by **larger meteoroids**. (May originate from the Asteroid Belt or from the Moon).

**Meteorites:** Meteoroids which are large enough not to be entirely burnt up passing through the atmosphere and actually reach the surface of the Earth.

**Short-period comets.** Comets with a period (time for one whole orbit) of <200 y, thought to originate in the **Kuiper Belt**.

A few have periods <20 y and have orbits which do not extend beyond the

**Long-period comets.** Comets with a period of >200 y, may originate in the **Oort Cloud**. Orbits may be **highly-inclined to the plane of the Solar System** and in the opposite direction to the planets.



**Optical Telescopes are of two basic types;**  
**Refractors** which use a **convex lens** to capture and focus light.  
**Reflectors** which use a **parabolic concave or converging mirror** to capture and focus light.

**Light Grasp** is a measure of how much light is captured by the objective element. **Light grasp  $\propto \text{area} \propto d^2$**  where **d = diameter** of the objective element. Larger = brighter and sharper image.

## Magnification

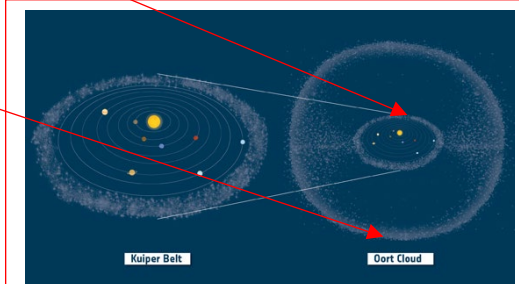
$$= \frac{\text{focal length objective}}{\text{focal length of eyepiece}} = f_o / f_e$$

## 'Pros and Cons' of different types of Telescopes.

### Advantages of Reflectors:

- Large mirrors are easier to make accurately than large lenses and large lenses do not hold their shape.
- Large mirrors have less mass than large lenses and can be more easily supported.
- Lenses **absorb** some of the light but mirrors reflect with little loss of intensity.
- Lenses cause **chromatic aberration**-they focus different wavelengths of light at slightly different points. This causes **blurring of the image**.

**Note: Cassigrain reflectors** reflect light **up and down the tube** so can be **shorter than Newtonian reflectors** with the same objective element diameter. **(See above for the advantage!)**



**Production is:**  
the process of turning raw materials into saleable products and services

- Job production**  
*Making products individually*
- Batch production**  
*Making one type of product then switching to make a different product*
- Flow production**  
*The production of one product on a continuous assembly line*
- Automation**  
*Production involving machinery not controlled by a person*

## 4:1 Production Processes

Job production		Batch production		Flow production	
Advantages	Disadvantages	Advantages	Disadvantages	Advantages	Disadvantages
<ul style="list-style-type: none"> <li>▪ Products are usually high-quality</li> <li>▪ Products can be made to meet the needs of individual customers</li> <li>▪ Workers often get more satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>▪ Costs of production will be high</li> <li>▪ Labour costs may be high because job production often requires skilled labour</li> </ul>	<ul style="list-style-type: none"> <li>▪ The needs of different customers can be met by making batches of different goods</li> <li>▪ Batches are made to meet specific orders from customers</li> <li>▪ It may be possible to use specialist machines to automate production</li> </ul>	<ul style="list-style-type: none"> <li>▪ It takes time to switch production from one batch to another - costly</li> <li>▪ May have to keep stock of raw materials to be able to switch production</li> <li>▪ Less choice of products for customers</li> <li>▪ Tasks are repetitive for workers</li> </ul>	<ul style="list-style-type: none"> <li>▪ Large amounts can be made</li> <li>▪ Costs of production for each unit is low</li> <li>▪ Machinery can be used, helping to reduce costs</li> <li>▪ Technology can be used to change the products slightly to more are available for customers to choose from</li> </ul>	<ul style="list-style-type: none"> <li>▪ Goods are mass-produced so quality may be low</li> <li>▪ Expensive to set up a production line</li> <li>▪ Large stocks of materials need to be kept which can be expensive</li> <li>▪ If production stops at any point then production stops everywhere</li> <li>▪ Jobs can be repetitive and boring</li> </ul>
<p>Technology is being used more and more in the production of goods and services.</p> <p>Technological development is making it possible for technology to perform skilled work and reducing the need for human resources</p>					

**Quality is:**  
about a product being fit for purpose and working in a way that it is supposed to

- Quality control**  
*A system for inspecting the quality of goods and services*
- Quality assurance**  
*An approach that involves the whole business focusing on quality*
- Returns**  
*Goods which customers take back to the shop because of problems*
- Recalls**  
*The business asks for products to be returned because of faults*

## 4:2 Quality of Goods and Services

**Importance of providing quality products**

- It avoids waste**  
If goods are not of a good quality they may not be able to be sold and so the producer has wasted money
- It avoids recalls**  
If unsatisfactory products are made and sold they will then have to be recalled and the issue resolved at a cost to the manufacturer
- Reputation and sales**  
Customers will not be happy with poor quality products and may shop elsewhere in the future
- Disrupted production**  
Production may be disrupted if quality is poor from the start

## 4:3 The Sales Process and Customer Service

Businesses are able to use a range of selling methods.  
E-commerce:

<p><b>Pros to the business</b></p> <ul style="list-style-type: none"> <li>Can sell worldwide</li> <li>Open 24/7</li> <li>Professional look at little cost</li> <li>Lower operating costs</li> </ul>	<p><b>Cons to the business</b></p> <ul style="list-style-type: none"> <li>Worldwide competition</li> <li>Problems with delivering and returning goods</li> <li>Online security issues</li> <li>Technology advances rapidly</li> </ul>
<p><b>Pros to the customer</b></p> <ul style="list-style-type: none"> <li>Price comparison available</li> <li>24/7 availability</li> <li>Wider range of products</li> </ul>	<p><b>Cons to the customer</b></p> <ul style="list-style-type: none"> <li>Lack of personal contact</li> <li>Problems returning goods</li> <li>Only image of goods seen</li> <li>Security</li> <li>Cannot pay with cash</li> </ul>

- E-commerce**  
*Bringing together the buyer and seller electronically*
- Customer service**  
*What a business does to keep customers happy*
- Face-to-face selling**  
*Usually completed in a shop where there is direct contact between buyer and seller*
- Telesales**  
*Sales completed over the telephone*
- After-sales service**  
*Any help and advice given to customers after they have bought a product*

Career readiness means being prepared to succeed in the world of work — not just having a job, but being ready to grow, learn, and thrive in a career. It's about having the skills, knowledge, and attitudes that employers look for. The activities below are to help you reach career readiness.

<b>Term 1</b>  	What are my employability skills?	Resources on unifrog What are my employability skills workbook What are my employability skills ppt	These are the tasks on unifrog and the suggested time when to do them. You are given the title of the resources so that you can find them yourself but they will appear on unifrog. You will get an email notification. The tasks are tracked. The activities include the teacher powerpoint, which gives suggestions. Sometimes, it might be good to do the activity with a friend or parent so that you can share ideas. The powerpoints are designed for a class of 30 pupils and have the teacher notes to help you. When working on your own, it will take 15 – 30 mins for the activities and longer for the thinking. Create a folder in which to save your worksheets.
	Post 16 Choices	Post 16 choices workbook Post 16 choices ppt	
	Choosing your post 16 pathway	Choosing your post 16 pathway workbook Choosing your post 16 pathway ppt	
<b>Term 2</b>  	Is a UK apprenticeship suitable for me	Is a UK apprenticeship suitable for me ppt	
	Using the apprenticeships tool	Diamond 9 – apprenticeships ppt Using the apprenticeships tool to find the best fit workbook Using the apprenticeships tool to find the best fit ppt	
	Apprenticeships or university?	Apprenticeships vs HE workbook Apprenticeships vs HE ppt	
<b>Term 3</b>  	Applying for an apprenticeship	Applying to an apprenticeship workbook Applying to an apprenticeship ppt	
	Finding a job	Researching volunteering or paid work workbook Researching volunteering or paid work ppt	
<b>Further interest</b>  	Coping with change, entering the world of employment	Powerpoints and workbook	Useful websites to use <a href="https://www.johnofgauntschool.org/parents-and-carers/careers-information">https://www.johnofgauntschool.org/parents-and-carers/careers-information</a> <a href="https://nationalcareers.service.gov.uk/">https://nationalcareers.service.gov.uk/</a> <a href="https://www.gov.uk/apply-apprenticeship">https://www.gov.uk/apply-apprenticeship</a> <a href="https://www.ucas.com/">https://www.ucas.com/</a> <a href="https://www.wiltshire.ac.uk/">https://www.wiltshire.ac.uk/</a> <a href="https://www.bathcollege.ac.uk/">https://www.bathcollege.ac.uk/</a>
	Adjusting to change	Information	
	Undecided about apprenticeships	Video	
	Demystifying higher apprenticeships (Level 3)	Video	

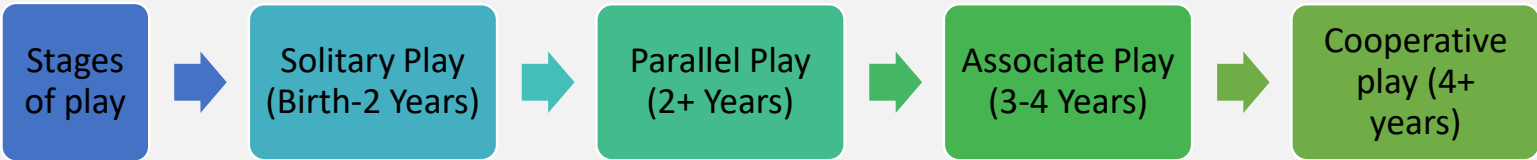
# Child Development Year 11 term 1 Observations

Method of observation	What the method involves
Narrative	A detailed written description of what is being observed over a short period of time.
Checklist	A list of possible skills is produced so that the observer can check off the child's skills as they are observed.
Snapshot	A brief note is made about a child to capture something they do or a skill they use.
Time sample	Capturing information about what a child is doing at particular times of the day. It could be how they play or how they behave.

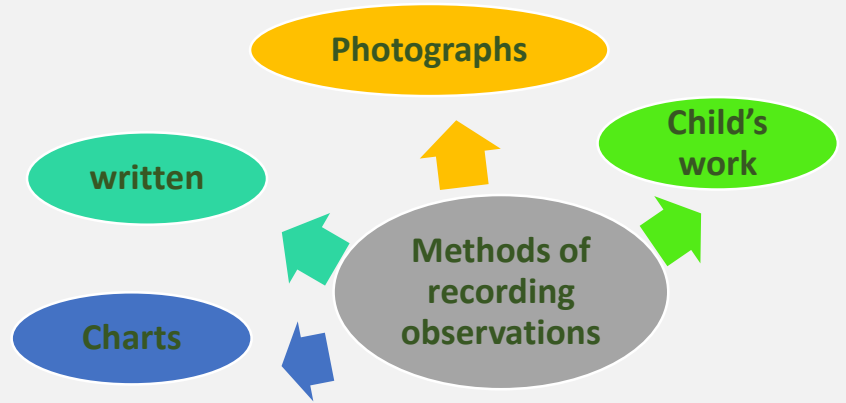
Observations are used to:

1. Find out if child is meeting an expected developmental norm
2. Understand a child's stage of play and what they enjoy doing
3. Find out what type of play the child likes to take part in

Key word	Definition
<b>Solitary Play</b>	When a child plays alone and does not take any notice of how other children are playing, they are at the solitary stage of play
<b>Parallel play</b>	Parallel play describes the stage when children play alongside each other but do not talk about or join in the other's play
<b>Associate Play</b>	Associate play happens when a child plays with another child but they do not plan their play
<b>Co-operative Play</b>	Children who discuss their play and plan what should happen are at the cooperative stage of play



Type of play	Definition	Examples of this type of play
<b>Creative play</b>	Where children experiment with materials, collage, painting, music, imagination	Collage making, painting, model making, music and dance
<b>Physical Play</b>	Play that involves gross motor skills, the muscles and moving around	Playing football, riding a scooter/tricycle, playing on swings/slides/climbing frame
<b>Manipulative play</b>	Children use their hands, (fine motor skills) e.g to move or turn things to make them fit.	Threading beads, puzzles, drawing/painting, construction
<b>Co-operative play</b>	Play which takes account of others actions within their play together; sharing, group play	Board games, role play, playing tag or football
<b>Imaginative play</b>	Children act out their ideas, they may role play certain situations such as shopping or imaginative, such as being in space.	Role play, puppets, small world, plays/drama



## GCSE Citizenship – Rights and Responsibilities

### 1. The Law

#### Key terms

**Civil law** - Law that deals with disputes between individuals or groups. There are civil courts which award damages (a money payment).

**Common law** - Law made by the decisions of judges over the years.

**Criminal law** - Law which deals with individuals who break the law, and which punishes offenders because they have broken laws that Parliament has stated we must all obey.

**Human Rights** - Basic rights and freedoms which all people are entitled to.

**Judiciary** - Branch of the state that is responsible for enforcing the law. It comprises Judges and other legal officials.

**Juries** - A group of local people who are chosen randomly to make a decision in a legal case.

**Justice** - The fairness as a result of the application of a Law, usually by a judge, in society.

**Legislature** - The law making body of the state ie the Parliament.

**Rights** - A right is something we are entitled to by law.

**Trade Unions** - A group of workers in the same trade or profession who have joined together to protect their rights.

**Appeals** - apply to a higher court for a reversal of the decision of a lower court.

**Defendant** - a person in a court of law who is accused of having done something wrong.

**Tribunal** - This is where a dispute is settled, quite often an employment related one for example, someone who feels they were dismissed from their job unfairly.

**UK Supreme Court** – The highest court of appeals in the UK.

## The principals of law



1. Justice
2. Fairness
3. Presumption of innocence
4. Equality

## The nature of laws

They offer legal certainty

They are properly enacted and clear in their purpose

They operate with equality and fairness

Laws are not retrospective

There is due legal process in enforcing the law

## What rights protect citizens in global conflict situations?

Universal Declaration of Human Rights

International Criminal Court

European Arrest Warrant

## The importance of Magna Carta for our rights in the UK

Magna Carta was a document signed by King John in 1215. Today, it is interpreted as the first time it was written down that nobody (not even the King) was above the law.

## The difference between civil and criminal law

Criminal cases are brought on behalf of the state against the citizen for breaking the law of the land. Civil cases relate to disputes between individuals or organisations and are resolved by the award of damages.

## The UK Justice System – The Police

Roles:

Maintain law and order; protect members of the public; detect and investigate crime.

Powers: Stop and search; Power to Arrest; Entry, search and seize.

## The UK Justice System – The Judiciary

The judiciary examines issues and cases where the citizen is accused of breaking the law, and has to make a judgement as to whether they have.

A sentence is then given if they are guilty.

The judiciary also deals with citizens who appeal against an outcome.

If citizens do not agree, they can appeal at the next level of court.

The judiciary is politically neutral and should not show bias.

## The UK Justice System – Legal Representatives

There are three main branches:

- Legal executives – employed by solicitors to carry out work in specialised areas i.e. house purchases
- Solicitors – carry out most of the work in magistrates and county courts. Also do private work for clients such as buying houses, making wills and advising on tax matters.
- Barristers – present cases in court. Work in Magistrates and Crown Courts. Specialise in criminal or civil law and have studied law at university.

## The UK Justice System – Judges

In control of a trial in a court room and grant adjournments (breaks in the proceedings).

Hear evidence to help decide a case. Direct a jury on evidence they have heard in regard to the law before deciding on a sentence.

### **Scotland has a slightly different structure**

In Scotland there are four levels of courts:

- 1) Justices of the peace: act in a similar fashion to the Magistrates' Court system in England and Wales.
- 2) Sheriff and summary: the sheriff (judge) determines guilt or innocence as well as presiding over the trial. They can impose a custodial sentence of up to one year and impose a fine of up to £10,000.
- 3) Sheriff and jury: cases are heard by the sheriff and a jury of fifteen jurors (members of the public). A Sheriff Court can impose a custodial sentence of up to five years.
- 4) The High Court: deals with the most serious cases such as: murder, rape and armed robbery. Cases are presided over by a single judge and tried by a jury of fifteen people.

### **The UK court system**

The diagram shows the court structure for England and Wales. Scotland and Northern Ireland follow a similar structure, but there are slight differences.

To try and summarise:

Criminal cases will start at a Magistrates Court. If a defendant wishes to appeal a decision, they can do this at the High Court, and further at the UK Supreme Court.

For serious criminal cases, these will then move from the Magistrates Court to the Crown Court where a jury is used to decide on innocence. If the defendant wishes to appeal the decision, they can do this at the Court of Appeal, and then the UK Supreme Court if necessary. An appeal is where you challenge the original judgement of the case.

For Civil Cases, they start at the County or Family court, and then go through the same appeals process as Criminal Cases.

The separate flow chart shows how a Tribunal works. This is where a dispute is settled, quite often an employment related one for example, someone who feels they were dismissed from their job unfairly.

### **The right to representation and Trade Unions**

A defendant is entitled to be represented when in court. Some people will be able to afford to pay for a solicitor, whereas others will have someone appointed to them by the court.

Trade Unions are part of this representation. A Trade Union is a group of workers in the same trade or profession who have joined together to protect their rights. They became prominent in the 19<sup>th</sup> Century, and have been protected by law since the early 20<sup>th</sup> Century. The Trade Union Congress (TUC) is one of the biggest unions, whilst other industries like teachers have their own. The main aim of Unions is to protect the rights of their workers in areas such as health and safety, fair pay and working conditions. Trade Unions can call a strike, but only if members of the union back it.

**Key content**

BIT DEPTH = NUMBER OF COLOURS	
Bit depth	Available colours
1 bit (Monochrome)	$2^1 = 2$
2 bits	$2^2 = 4$
3 bits	$2^3 = 8$
8 bits	$2^8 = 256$
16 bits (High Color)	$2^{16} = 65,536$
24 bits (True Color)	$2^{24} = 16.7$ million
32 bits (Deep Color)	$2^{32} = 4.3$ billion

ESTIMATING FILE SIZES
<b>IMAGES:</b>
<b>width X height X colour depth = size</b>
<b>SOUND:</b>
<b>N° of channels X sample rate X bit depth</b>
To get the value into mB, you divide by <b>1,000,000!</b>

**Diagrams**

**SOUND SAMPLING**

As the sample rate increases, the quality of the sound goes up – the sound is closer to the analogue original, but the file size also increases. Reduce the sample rate, you reduce quality but also file size.

Each measurement is assigned a number (byte) according to its amplitude. The end result is a file comprising a string of bytes, eg ...  
1001 1110 0001 1010 0111 0100 1111 1101 etc

**Key vocab**

Word	Definition
Denary	Base 10 number system. Uses digits 0,1,2,3,4,5,6,7,8,9
Binary	Base 2 number system. Uses digits 0 and 1 only.
Hexadecimal	Base 16 number system. Uses characters 0-9 and A,B,C,D,E and F
BIT	Contraction of BINARY DIGIT a single value of 0 or 1
Bit Depth	The number of bits used to store the Sound
Character Set	A list of unique values, stored in binary, which represent the letters, numbers and symbols a computer can show/use.
ASCII	A list of unique values, stored in binary, which represent the letters, numbers and symbols a computer can show/use.
Extended ASCII	A character set which uses 8 bits to store 256 characters
Unicode	A characters set which uses 16 bits to store 65,535 characters
Integer	A whole number (value written to 0 decimal places)
Float	A decimal value
Exponent	Mathematical term which tells you how many time to multiply a BASE by itself.
JPEG	Joint Photographic Experts Group Compression for images lossy
GIF	Graphics Interchange Format Lossless bitmapped image format for limited colours.
Bit rate	The number of bits used to store 1 second of sound
Sample Rate	The number of times the sound is sampled in 1 second; measured in kHz
Resolution	The number of pixels used per unit eg pixels per inch (ppi)
Colour Depth	The number of bits used to represent each pixel. Shown in bits per pixel (bpp)

More info can be found here:

- <https://youtu.be/KzgbVfnJ7I4>
- <https://youtu.be/6EfxuAOKZKc>
- <https://youtu.be/Ed7AFazB8PM>
- <https://youtu.be/9oYV4JvSsok>

**Lighting**

FRESNEL: lantern giving a soft-edged beam of light

GOBO: Thin metal plate cut out in a pattern and placed in a lantern to project pattern or shape into the acting area.

PROFILE SPOT: Lantern giving a hard edge beam of light

WASH/FLOOD: Flooding the stage with light

BARN DOORS: adjustable metal flaps attached to the front of a Fresnel for shaping the beam of light

INTENSITY: the level of light used

MOVING HEAD/BIRDIE UP LIGHT: Types of light

HAZE: smoke on stage to reflect light

GEL: film placed in front of the light to change the colour of the beam

**Sound**

MOTIF: a recurring melody

REVERB: electronically created echo

MAJOR/MINOR CHORD: collection of notes to sound sad or happy

LIVE SFX: sound effects that are created live

PRE-RECORDED SFC: pre-recorded

DIEGETIC SOUND: sound the characters can hear

NON-DIEGETIC SOUND: sound the characters cannot hear

AMPLIFY: to make louder

UNDERSCORE: music that accompanies the scene

LEVELS: how loud the sound is

TIMING: snap, cross fade, slow

**Set**

CYCLORAMA: piece of fabric light is reflected on

FLY: rigging system, pulleys and ropes to hoist people and set

TRUCK: set on wheels

GRAFFITI: writing on staging to create atmosphere

HYDROLIC STAGE: revolving stage by water

PROP: objects

FURNITURE: set pieces, could be trucks

RAKE: slope of stage or audience

ROSTRA: blocks or platforms to create levels

**Costume**

FABRIC: what the item is made from

FIT: how the item fits them e.g. baggy or loose or tight

DETAIL: things that make the item unique

QUALITY: whether the item is brand new or worn

COLOUR: colours chosen or mixed and what this says about the character

ITEM: e.g. top, trousers, dress, hat, jewellery, shoes

TAILORING: fit of item e.g. a suit

STAGE MAKE-UP: foundation, rouge, eye-liner, bruise wheel, latex, fake-blood

**DESIGN 'Blood Brothers', using key terminology. No terminology, no marks.**

ENGINEERING YEAR 11 MODULE 1  
Risk Assessment

When Engineers work with tools and machinery in a workshop environment, they need to understand the process of being as safe as possible. This is achieved by undertaking a Risk Assessment.



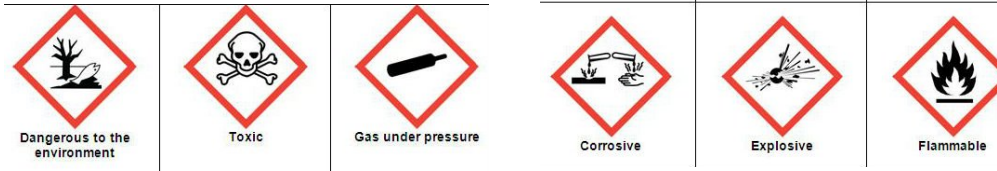
## Health and Safety within a work space

### The Five Steps to Risk Assessment

- Step 1** identify the hazards.
- Step 2** Who may be harmed and why.
- Step 3** Evaluate risk and choose precautionary control measures.
- Step 4** Record (write down) your findings.
- Step 5** Review and update when needed.

RISK ASSESSMENTS				
Hazard (low, Medium, High risk).	Who might be harmed and how	Control Measure in place (what should be in place to minimise the hazard from happening	Responsibility to ensure control measures are in place	Checked

Sign	Meaning	Shape	Colour
	<b>Mandatory sign:</b> specific instruction on behaviour	Round	White border, blue background, white pictogram
	<b>Warning sign:</b> giving warning of hazard or danger	Triangular	Black border, yellow/orange background, black pictogram
	<b>Prohibition sign:</b> prohibiting behaviour and/or actions	Round	Red border, white background, black pictogram
	<b>No Danger:</b> information on emergency exits, first aid, emergency stop, etc.	Square or rectangular	White boarder, green background, white pictogram



**COSHH: Care Of Substances Hazardous to Health**

### COSHH

Awareness and training is a needed set of skills that Engineers have to be aware of, in a workshop environment.

Engineers will be working with some substances that could be hazardous to your health and would need to be worked with, handled and stored in a safe and secure place,

(<http://www.hse.gov.uk/coshh/basic/substance.htm>)

## Drill Speeds

Drill Dia. (mm)	Drill Speed (rpm)			
	Steel	Cast Iron	Iron	Alum. & Copper
3	1580	2580	2580	2580
4	1350	2100	2100	2500
5	1290	1580	1580	2580
6	830	1350	1350	2580
7	830	1290	1290	2580
8	830	1290	1290	2580
9	540	830	830	2180
10	500	830	830	2180
11	500	830	830	1580
12	420	830	540	1580
13	420	540	540	1350
14	420	540	500	1350
16	320	500	500	1290
18	320	420	420	1290
20	280	320	320	1290
22	210	320	280	830
25	210	280	210	830

## Machine Cutting Speeds

$$\text{Cutting Speed (V)} = \frac{\pi \times D \times S}{1,000}$$

$$\text{Spindle Speed (S)} = V \div \pi \div D \times 1,000$$

$$\text{Feed (F)} = S \times f \times N$$

$$\text{feed per Tooth (f)} = \frac{F}{S \times N}$$

**V** = Cutting Speed  
**π** = The Circular Constant  
**D** = Diameter  
**S** = Spindle Speed  
**F** = Feed  
**f** = Feed per Tooth  
**N** = Number of Flutes

## Metric Coarse Tapping Drill Sizes

Size	Pitch	Drill
M1	0.25	0.75
M2	0.4	1.6
M3	0.5	2.5
M4	0.7	3.3
M5	0.8	4.2
M6	1	5
M7	1	6
M8	1.25	6.75

## Overview of the exam:

- The exam is an hour and 45 minutes.
- Spend 1 hour on section A (10-15 minutes reading time) You will be given two sources from two different time periods - both are non-fiction texts (pre-1900 and post-1900)
- You should spend an hour on section A-Reading Section (Q1-4)). This allows for 10-15 minutes of reading time)
- You should spend 45 minutes on section B-Writing section (Q5)

**NB: Section A and B are both worth 40 marks**

### QUESTION 1 (5 minutes)

**'Choose four statements which are TRUE...'**

- Refers to Source A.
- Identify EXPLICIT (Things you are told) and IMPLICIT (what you can infer) information referring to part of the text.
- Shade only 4 boxes in.

**\*Make sure you read the text and question carefully.**

### QUESTION 2 (10 minutes)

**'Write a summary of the differences between...'** 8 marks

- You need to refer to source A and Source B.
- Use quotations from both sources to support your answer.
- You need to COMPARE the CONTENT of the two sources in line with what the question is asking you to look for.

Point – evidence – infer – comparative point – evidence – infer.

\*You do not need to analyse the language.

These are similar questions. However, Q2 is asking you about **what** is being said. Q4 is asking what the writer's **views** on something are and **how** they get these views across.

### QUESTION 3 (15 minutes)

**'How does the writer use LANGUAGE...?' 12 marks**

Explain, comment on and analyse the language used. Make sure that you read the question properly Remember to: Include LANGUAGE TERMINOLOGY- if you do not know what these key terms mean – look them up!

- ✓ Imagery-simile, metaphor, personification
- ✓ Symbolism
- ✓ Adjectives, verbs and adverbs
- ✓ Persuasive language devices: AFOREST/FAT HORSE
- ✓ Satire
- ✓ Allusion
- ✓ Plosives
- ✓ Hyperbole
- ✓ Semantic field

Consider the effect on the reader. What does this make the reader THINK/FEEL/IMAGINE/BELIEVE?

### QUESTION 4 (20-25 minutes)

**'Compare how the two writers convey their similar/different attitudes/ideas/perspectives to...'** 16 marks

- Refers to Source A AND Source B – you must address each source equally.
- You need to consider the writers' **point of view** (their feelings) on the subject and compare the ways they **PRESENT** their ideas (what methods do they use?)
- Remember to talk about the methods they use, such as:
  - ✓ Language choices
  - ✓ Imagery and linguistic devices (similes, metaphors etc)
  - ✓ Persuasive techniques (AFOREST/FAT HORSE)
  - ✓ Register that they use – 1<sup>st</sup> or 3<sup>rd</sup> person
  - ✓ Tone that they use – humorous, passionate, frustrated etc
  - ✓ The structure and form that they use.

### QUESTION 5

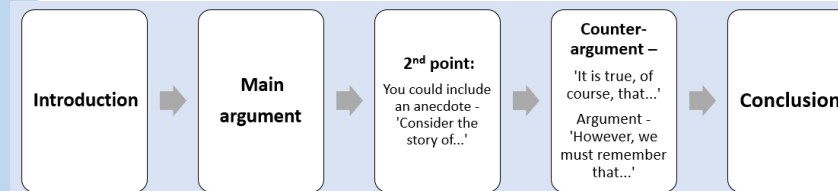
Produce your own non-fiction text (based on the theme in Section A)

You could be asked to write any of the different text types in the table below.

- 24 marks for content and organisation
- 16 marks for technical accuracy

Q5 – Example: - 'Festivals and fairs should be banned. They encourage bad behaviour and are disruptive to local communities.' -Write a letter to your local newspaper in which you argue for or against this statement. -

#### How to structure a persuasive text



#### Remember that different text types = different formats

<b>Letter:</b>	Two addresses, date, Dear Sir/Madam, Yours Sincerely
<b>Article:</b>	Headline, by-line, subheadings
<b>Essay:</b>	Introduction, convincing opinion throughout, conclusion
<b>Leaflet:</b>	Title, subheadings, some bullet points
<b>Speech:</b>	Address your audience at the start and end, use direct address,

#### Revision websites/useful links:

##### BBC Bitesize:

[https://www.youtube.com/watch?v=yKZ\\_Tr2Y-CE&list=PLqGFsWf-P-cB-GSeqYup7PXId4pblidQVq](https://www.youtube.com/watch?v=yKZ_Tr2Y-CE&list=PLqGFsWf-P-cB-GSeqYup7PXId4pblidQVq)

##### Mr Bruff Q1-5 videos on youtube:

[https://www.youtube.com/watch?v=yKZ\\_Tr2Y-CE&list=PLqGFsWf-P-cB-GSeqYup7PXId4pblidQVq](https://www.youtube.com/watch?v=yKZ_Tr2Y-CE&list=PLqGFsWf-P-cB-GSeqYup7PXId4pblidQVq)

##### Revision booklet and example paper:

<https://resources.finalsite.net/images/v1553545594/sydenhamlewishamschuk/xdtvk0car965cxhfiyk7/171218-Paper-2-Revision-Booklet.pdf>

# Macronutrients, fibre and water



## Macronutrients

Macronutrients provide energy. The macronutrients are:

- carbohydrate;
- protein;
- fat.

Macronutrients are measured in grams (g).

## Alcohol

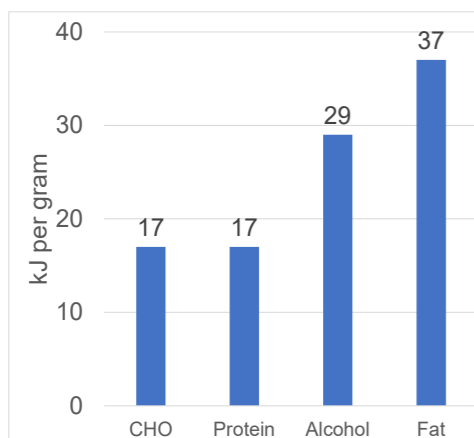
Alcohol is not considered a nutrient, but is a source of energy in the diet.

The government recommends no more than 14 units of alcohol per week for both men and women.

## Energy from food

- Energy intake is measured in joules (J) or kilojoules (kJ), but many people are more familiar with Calories (kcal).
- Different macronutrients, and alcohol, provide different amounts of energy.

	Energy per gram
Carbohydrate	16kJ (3.75 kcals)
Protein	17kJ (4 kcals)
Alcohol	29kJ (7kcals)
Fat	37kJ (9 kcals)



## Protein

- Made up of building blocks called amino acids.
- There are 20 amino acids found in protein.
- Eight amino acids have to be provided by the diet (called essential amino acids).

The essential amino acids (EAAs) are isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan and valine.

In young children, additional amino acids, e.g. histidine and tyrosine, are sometimes considered to be essential (or 'conditionally essential') because they may be unable to make enough to meet their needs.

## Recommendations

- 0.75g/kg bodyweight/day in adults.

Sources:

**Animal sources:** meat; poultry; fish; eggs; milk; dairy food.

**Plant sources:** soya; nuts; seeds; pulses, e.g. beans, lentils; mycoprotein.

## Protein complementation

Different food contains different amounts and combinations of amino acids.

Vegans and vegetarians can get all the amino acids they need by combining different protein types at the same meal. This is known as protein complementation.

Examples are:

- rice and peas;
- beans on toast;
- hummus and pitta bread;
- bean chilli served with rice.

## Carbohydrate

All types of carbohydrate are compounds of carbon, hydrogen and oxygen. They can be divided into three main groups according to the size of the molecule.

These three types are:

- monosaccharides (e.g. glucose);
- disaccharides (e.g. lactose);
- polysaccharide (e.g. sucrose).

The two types main of carbohydrate that provide dietary energy are starch and sugars. Dietary fibre is also a type of carbohydrate.

Starchy carbohydrate is an important source of energy.

Starchy foods - we should be choosing wholegrain versions of starchy foods where possible.

## Recommendations

- Total carbohydrate - around 50% of daily food energy.
- Free sugars include all sugars added to foods plus sugars naturally present in honey, syrups and unsweetened fruit juice (<5% daily food energy).
- Fibre is a term used for plant-based carbohydrates that are not digested in the small intestine (30g/day for adults).

## Fibre

- Dietary fibre is a type of carbohydrate found in plant foods.
- Food examples include wholegrain cereals and cereal products; oats; beans; lentils; fruit; vegetables; nuts; and, seeds.

Dietary fibre helps to:

- reduce the risk of heart disease, diabetes and some cancers;
- help weight control;
- bulk up stools;
- prevent constipation;
- improve gut health.

## Fat

Sources of fat include:

- saturated fat;
- monounsaturated fat;
- polyunsaturated fat.

Fats can be saturated, when they have no double bonds, monounsaturated, when they have one double bond, or polyunsaturated, when they have more than one double bond.

## Recommendations

- <35% energy, Saturated fat <11% energy.

A high saturated fat intake is linked with high blood cholesterol levels.

## Sources:

**Saturated fat:** fatty cuts of meat; skin of poultry; butter; hard cheese; biscuits, cakes and pastries; chocolate.

**Monounsaturated fat:** edible oils especially olive oil; avocados; nuts.

**Polyunsaturated fatty acids:** edible oils especially sunflower oil; seeds; margarine; spreadable fats made from vegetable oils and oily fish.

**Dietary reference values (DRVs)** are a series of estimates of the energy and nutritional requirements of different groups of healthy people in the UK population. They are not recommendations or goals for individuals.

**Reference Intakes** are guidelines for the maximum amount of energy (calories), fat, saturated fat, sugars and salt consumed in a day (based on a healthy adult female).

## Tasks

1. Create an infographic on macronutrients. Focus on the definition of each nutrient, daily recommendations and source.
2. Keep a food diary for four days and calculate the macronutrients provided per day. <http://explorefood.foodafactoflife.org.uk>

## Key terms

**Dietary reference values:** Estimated dietary requirements for particular groups of the population.

**Essential amino acids:** 8 of the different amino acids found in proteins from plants and animals that have to be provided by the diet.

**Macronutrients:** Nutrients needed to provide energy and as the building blocks for growth and maintenance of the body.

**Protein complementation:** Combining different protein types at the same meal to ensure all EAAs are ingested.

**Reference Intakes:** Guidelines for the maximum amount of nutrients consumed.

## Hydration

- Aim to drink 6-8 glasses of fluid every day.
- Water, lower fat milk and sugar-free drinks including tea and coffee all count.
- Fruit juice and smoothies also count but should be limited to no more than a combined total of 150ml per day.

20% of water is provided by food such as soups, yogurts, fruit and vegetables.

The other 80% is provided by drinks such as water, milk and juice.

Drinking too much water can lead to 'water intoxication' with potentially life threatening hyponatraemia.

This is caused when the concentration of sodium in the blood gets too low.

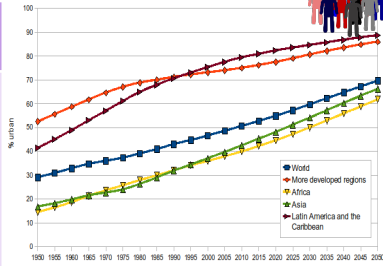
For more information, go to: <https://bit.ly/36KUnji>

## What is Urbanisation?

This is an increase in the amount of people living in urban areas such as towns or cities. In 2007, the UN announced that for the first time, more than 50 % of the world's population live in urban areas.

### Where is Urbanisation happening?

Urbanisation is happening all over the world but in LICs and NEEs rates are much faster than HICs. This is mostly because of the rapid economic growth they are experiencing.



## Causes of Urbanisation

### Rural - urban migration (1)

The movement of people from rural to urban areas.



#### Push

- Natural disasters
- War and Conflict
- Mechanisation
  - Drought
- Lack of employment



#### Pull

- More Jobs
- Better education & healthcare
- Increased quality of life.
- Following family members.



### Natural Increase (2)

When the birth rate exceeds the death rate.

#### Increase in birth rate (BR)



- High percentage of population are child-bearing age which leads to high fertility rate.
- Lack of contraception or education about family planning.

#### Lower death rate (DR)



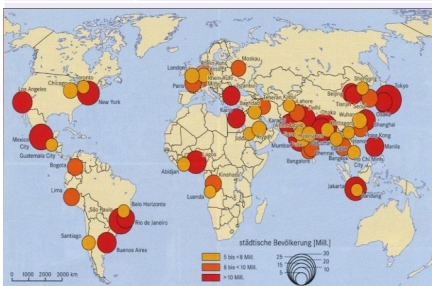
- Higher life expectancy due to better living conditions and diet.
- Improved medical facilities helps lower infant mortality rate.

## Types of Cities



### Megacity

An urban area with over 10 million people living there.



More than two thirds of current megacities are located in either NEEs (Brazil) and LICs (Nigeria). The amount of megacities are predicted to increase from 28 to 41 by 2030.

## Sustainable Urban Living

Sustainable urban living means being able to live in cities in ways that do not pollute the environment and using resources in ways that ensure future generations also can use them.



### Water Conservation

This is about reducing the amount of water used.

- Collecting rainwater for gardens and flushing toilets.
- Installing water meters and toilets that flush less water.
- Educating people on using less water.



### Creating Green Space

Creating green spaces in urban areas can improve places for people who want to live there.

- Provide natural cooler areas for people to relax in.
- Encourages people to exercise.
- Reduces the risk of flooding from surface runoff.

### Energy Conservation



Using less fossil fuels can reduce the rate of climate change.

- Promoting renewable energy sources.
- Making homes more energy efficient.
- Encouraging people to use energy.

### Waste Recycling



More recycling means fewer resources are used. Less waste reduces the amount that eventually goes to landfill.

- Collection of household waste.
- More local recycling facilities.
- Greater awareness of the benefits in recycling.

## Unit 2a



# Urban Issues & Challenges

## Sustainable Urban Living Example: Freiburg



### Background & Location

Freiburg is in west Germany. The city has a population of about 220,000. In 1970 it set the goal of focusing on social, economic and environmental sustainability.



### Sustainable Strategies

- The city's waste water allows for rainwater to be retained.
- The use of sustainable energy such as solar and wind is becoming more important.
- 40% of the city is forested with many open spaces for recreation, clean air and reducing flood risk.

## Integrated Transport System



This is the linking of different forms of public and private transport within a city and the surrounding area.

## Brownfield Site



Brownfield sites is an area of land or premises that has been previously used, but has subsequently become vacant, derelict or contaminated.

## Traffic Management



Urban areas are busy places with many people travelling by different modes of transport. This has caused urban areas to experience different traffic congestion that can lead to various problems.

### Environmental problems

- Traffic increases air pollution which releases greenhouse gases that is leading to climate change.



### Economic problems

- Congestion can make people late for work and business deliveries take longer. This can cause companies to loose money.

### Social Problems

- There is a greater risk of accidents and congestion is a cause of frustration. Traffic can also lead to health issues for pedestrians.

## Congestion Solutions

- Widen roads to allow more traffic to flow easily.
- Build ring roads and bypasses to keep through traffic out of city centres.
- Introduce park and ride schemes to reduce car use.
- Encourage car-sharing schemes in work places.
- Have public transport, cycle lanes & cycle hire schemes.
- Having congestion charges discourages drivers from entering the busy city centres.



## Traffic Management Example: Bristol

In 2012 Bristol was the most congested city in the UK. Now the city aims to develop it's integrated transport system to encourage more people to use the public transport. The city has also invested in cycle routes and hiring schemes.



## Greenbelt Area

This is a zone of land surrounding a city where new building is strictly controlled to try to prevent cities growing too much and too fast.

## Urban Regeneration



The investment in the revival of old, urban areas by either improving what is there or clearing it away and rebuilding.

## Urban Change in a Major UK City: London Case Study




## Urban Change in a Major NEE City: RIO DE JANEIRO Case Study



### Location and Background

- A population of 8.8 million
- Located in the SE along the River Thames




### City's Importance

- London is classed as a world city, coming second to New York
- The London Stock exchange is a leader of the global markets.
- Many TNCs have their headquarters in London e.g HSBC
- It is an important cultural centre with many leading museums and gallery e.g The Tate Modern

### Migration to London

During the industrial revolution, the population dramatically increased with people migrating from nearby rural communities. With the attraction of working in the large docks along the river Thames, international migrants from Ireland, Pakistan and the Caribbean came to work in London from 1900-1960. Nearly 40% of the population was born overseas. More recently, refugees have arrived from Syria and Iraq. Also London has attracted thousands of students from the UK & abroad.



### City's Opportunities

**Social:** London has various cultural attractions such as the Lyceum theatre & museums. Oxford street is very popular with shoppers.

**Economic:** London wages are above the national average. Major employers such as HSBC have their headquarters there. The financial sector is particularly important

**Environmental:** London is the 5<sup>th</sup> most sustainable city in the world. The congestion charge aims to reduce pollution

### City Challenges in Southwark, London

**Social:** 13% have no qualifications (London average 12%). 41% of children are in one parent households and child poverty is a key issue in Southwark.

**Economic:** 8.7% of people are unemployed (UK 4%) 22% of the population received low pay. Heavy industry has left the area due to deindustrialisation.

**Environmental:** inner city flats are run down, an Economist article states that the old estate is polluted and stinks of vomit and urine


### The Regeneration of the Aylesbury Estate

- L and Q housing association funded a £300 million regeneration scheme
- Flats were knocked down and rebuilt
- Two parks and a public square were part of the design
- 1400 local people were employed by the project
- 3500 new homes built
- State of the art medical centre
- All flats have A rated white goods
- A mix of social and private housing
- CCTV and security key fobs used



### Location and Background

Rio is a coastal city situated in the South East region of Brazil within the continent of South America. It is the second most populated city in the country (6.5 million) after Sao Paulo.



### City's Importance


- Has the second largest GDP in Brazil It is headquarters to many of Brazil's main companies, particularly with Oil and Gas.
- Sugar Loaf mountain is one of the seven wonders of the world.
- One of the most visited places in the Southern Hemisphere.
- Hosted the 2014 World Cup and 2016 Summer Olympics.

### Migration to Rio De Janeiro

The city began when Portuguese settlers with slaves arrived in 1502. Since then, Rio has become home to various ethnic groups.

However, more recently, millions of people have migrated from rural areas that have suffered from drought, lack of services and unemployment to Rio. People do this to search for a better quality of life.

This expanding population has resulted in the rapid urbanisation of Rio de Janeiro.



### City's Opportunities

**Social:** Standards of living are gradually improving. The Rio Carnival is an important cultural event for traditional dancing and music.

**Economic:** Rio has one of the highest incomes per person in the country. The city has various types of employment including oil, retail and manufacturing. (15000 employed in Nissan

**Environmental:** The hosting of the major sporting events encouraged more investment in sewage works and public transport systems.

### City Challenges

**Social:** There is a severe shortage of housing, schools and healthcare centres available. Large scale social inequality, is creating tensions between the rich and poor.

**Economic:** The rise of informal jobs with low pay and no tax contributions. There is high employment in shanty towns called Favelas

**Environmental:** Shanty towns called Favelas are established around the city, typically on unfavourable land, such as hills.

### Self-help schemes - Rocinha, Bairro Project

- The authorities have provided basic materials to improve peoples homes with safe electricity and sewage pipes.
- Government has demolished houses and created new estates.
- Community policing has been established, along with a tougher stance on gangs with military backed police.
- Greater investment in new road and rail network to reduce pollution and increase connections between rich and poor areas.



# Henry VIII and his Ministers Unit 1

## KEY WORDS

### KEY NAMES

No	Name	
1	<b>Henry VIII</b>	King of England 1509 - 47
2	<b>Cardinal Wolsey</b>	chief minister, cardinal and Lord Chancellor until 1529
3	<b>Catherine of Aragon</b>	Henry VIII's wife from 1509 – 1536, aunt of Charles V (I)
4	<b>Anne Boleyn</b>	Daughter of Sir Thomas Boleyn and niece of the Duke of Norfolk – an advisor to the king
5	<b>Cardinal Campeggio</b>	Sent to England by the Pope to give a Papal input into the proceedings of the annulment
6	<b>John Fisher</b>	Bishop of Rochester – supported Catherine
7	<b>Thomas More</b>	advisor to the king – supported Catherine
8	<b>Charles V</b>	Nephew of Catherine and the most powerful man in Europe – HRE (Charles I of Spain)
9	<b>Francis I</b>	King of France from 1515 (25)
10	<b>Pope Clement V</b>	The Spiritual leader of the Roman Catholic Church based in Rome
11	<b>Habsburg</b>	Royal Catholic family that ruled Spain during Henry's time

20	Jousting	A sporting contest where two opponents are on horseback and try to knock the other off
21	Accession	To become king or queen
22	Betrothed	A formal engagement that could not be easily broken
23	Holy Roman Empire	Group of different states in Europe ruled under an emperor
24	Renaissance	Revival of European art and culture based on ancient Greece and Rome
25	Courtly love	Form of elite entertainment – noblemen tried to win women's hearts – who pretended to be uninterested
26	Lord Chancellor	Most important post in Henry VIII's government – advised the king in all matters
27	Archbishop of York	Second most important religious appointment in England after Archbishop of Canterbury
28	Cardinal	A senior leader in the Roman Catholic Church
29	Moveable goods	Possessions that could be moved from one place to another – like furniture
30	Royal household	Formed the basis for the general government of the country as well as providing for the needs of the king and his relations
31	Privy Chamber	the private apartment of a royal residence in England. Gentlemen of the Privy chamber were servants to the Crown.
32	Royal Council	Any council called to advise the king
33	Court	the extended household and all those who regularly attended on the king
34	Consummated	Confirming a marriage by having sex – a marriage was not considered valid until then
35	Justices of the Peace	Elected or appointed) to keep the peace
36	Enclosure	An area of farmland that were being fenced off for private use, often taken from common land
37	Subsidy	Additional tax based on an up to date assessment of a person's income
38	Annulment	A legal term declaring that a marriage was never valid – this can only be granted by the pope.
39	Leviticus	A Book in the bible
40	Praemunire	Treason by a member of the clergy as a result of working in the interests of the Pope
41	Succession	Who would come to the throne next

### Key Events

12	<b>Amicable Grant</b>	Amicable Grant – priest to pay 1/3 of income/ everyone else 1/6 – to raise money for war with France - unpopular
13	<b>Eltham Ordinance</b>	List of rules to deal with money and behavior in palaces
14	<b>Battle of the Spurs</b>	Henry defeated the French army here in 1513
15	<b>Treaty of London 1518</b>	Wolsey's attempt at universal peace – end war with France, England and Spain.
16	<b>Field of Cloth of Gold 1520</b>	Series of conferences with Francis I and Charles V to prevent war. Henry and Charles used this to show off
17	<b>Treaty of More 1525</b>	Peace treaty with France – Henry gave up claims to France in return for an annual payment
18	<b>Treaty of Westminster 1527</b>	Relations with France were strengthened further by this. It threatened Charles with armed intervention if he did not seek improved relations
19	<b>Treaty of Cambrai 1529</b>	Francis made peace with Charles – England was not treated as an equal

<u>TIMELINE</u>
<p><b>1509</b> – Henry VIII succeeds his father as king</p> <p><b>1509</b> – HeNry VIII Catherine of Aragon</p> <p><b>1512</b> –England and Spain form anti French alliance</p> <p><b>1513</b> – Battle of Flodden – CoA defeated Scotland for Henry VIII</p> <p><b>1515</b> – Thomas Wolsey becomes chief minister, cardinal and Lord Chancellor</p> <p><b>1516</b> – Charles I becomes king of Spain</p> <p><b>1518</b> – Treaty of London</p> <p><b>1519</b> – Charles I becomes Charles V Holy Roman Emperor</p> <p><b>1520</b> – Field of the Cloth of Gold</p> <p><b>1521</b> – Henry VIII awarded the title 'Defender of the Faith' by the pope</p> <p><b>1525</b> the Amicable Grant</p> <p><b>1526</b> – the Eltham Ordinances</p> <p><b>1527</b>- Henry decides to Divorce Catherine of Aragon</p> <p><b>1528</b> – Henry declares war on Charles V</p> <p><b>1529</b> – Charles V and Francis I make peace – Treaty of Cambrai</p> <p><b>1529</b> – Fall of Wolsey – having failed to secure the Kings divorce</p> <p><b>1529</b> – Pope Clement VII captured by Charles V</p>

# Henry VIII and his Ministers Key Topic 2: Henry and Cromwell, 1529-40

Key Names			Key points			
No	Name		17	<b>Cromwell reforms</b>	Reform of Royal Council from 100 to 20 advisors, lawyers and professionals - not noblemen – to stop single people dominating	
1	<b>Henry VIII</b>	King of England 1509 - 47	18		Reform of the Council of the North – from 1537 was responsible for maintaining law and order in the North – prevented rebellions and maintained government authority.	
2	<b>Thomas Cromwell</b>	King’s minister from 1539	19		Financial – Created 6 departments to take work load from the Star Chamber – 4 for the kings traditional income 2 to deal with that by the dissolutions – each had the power to settle financial disputes	
3	<b>Jane Seymour</b>	Henry’s third Wife – died due to childbirth	20		Reform of Wales 1536 – Wales official part of England – English the official language, represented by 26 M.Ps/ each county has its own Justice of the Peace.	
4	<b>Anne of Cleves</b>	Henry’s forth Wife – the marriage did not last long	21	<b>Court of Augmentations</b>	1536 – Dealt with property and income gained from the dissolution of the Monasteries	
5	<b>Cardinal Campeggio</b>	Sent to England by the Pope to give a Papal input into the proceedings of the annulment	22		<b>Court of First Fruits and Tenths</b>	1540 – collected tax from the clergy which had previously been sent to Rome
6	<b>Duke of Norfolk</b>	Uncle of Catherine Howard – rival of Cromwell and wanted his job	23	<b>Act of Annates</b>	1532 – banned the payment of a tax to Rome from the salaries of recently appointed clergy	
7	<b>Catherine Howard</b>	Henry’s Fifth Wife		<b>Use of Parliament</b>	Used more regularly, key changes in Church and state made by Acts of Parliament/ used to gain support for Henry and increase his authority	
8	<b>Charles V</b>	Nephew of Catherine and the most powerful man in Europe – HRE (Charles I of Spain)			<b>Anne of Cleves marriage</b>	To provide Henry with European Ally he needed – The Duke of Cleves wanted an ally also and also had broken from Rome. Cromwell thought this would strengthen the Protestant cause in court. By 1540 the threat of invasion from France/ HOE had declined and Henry no longer needed the alliance.
9	<b>Francis I</b>	King of France from 1515 (25)		<b>Cromwell’s Fall</b>		Blamed for the failed marriage to Anne of Cleves, Duke of Norfolk disliked him, Cromwell was disliked by French Catholics – removing him meant better relations with France/ Cromwell had many enemies within Court and the Church – resenting the dissolution of the Monasteries and execution of Fisher and More. They also disliked his support of reform and Protestantism
10	<b>Pope Clement V</b>	The Spiritual leader of the Roman Catholic Church based in Rome			Key Words	
11	<b>Habsburg</b>	Royal Catholic family that ruled Spain during Henry’s time		24	<b>Excommunication</b>	the action of officially excluding someone from participation in the sacraments and services of the Christian Church.
<b>Key points</b>				25	<b>Heretic</b>	a person believing in or practising a different religion
12	<b>Reasons for Cromwell’s rise to power</b>	Loyalty, Ruthlessness, Efficiency, wit and charm				
13	<b>Cromwell 1534-40</b>	In charge of the Church 1535, in charge of the King’s personal seal 1546, Influential role in Law 1533, in charge of finances 1533, in charge of Henry’s household 1540				
14	<b>Reasons for Anne’s Fall</b>	Henry was in love with Jane Seymour, Anne had failed to give him a male heir, Anne had strong opinions of foreign policy and religion, gossip with suggested she had affairs				
15	<b>Cromwell’s role in Anne’s Fall</b>	Aware of her role in Wolsey’s fall – wanted to avoid same, they had differences of opinion over foreign policy, he built the cause of adultery against her,				
16	<b>Jane Seymour</b>	Fulfilled her duty and had a son, strengthening the succession – showing that God blessed Henry.				

<b>TIMELINE</b>
1519 – Cromwell becomes a member of Wolsey’s council and a trusted advisor 1531 – Cromwell becomes member of the Privy Council/ Henry’s most trusted advisor 1533 – Cromwell becomes Henry’s Chief Minister 1533 – January Henry and Anne are secretly married – Anne was pregnant 1533 March Act in Restraint of Appeals – England was an Empire not subject to foreign rule 1533 May – divorce hearing between Henry VIII and Catherine 1533 – Cromwell becomes Chancellor or the Exchequer 1540 – Cromwell becomes Henry’s Lord Great Chamberlain. 1533- September – Anne gives birth to Elizabeth 1534 – Anne has miscarriage 1536 January – Anne has another miscarriage of a deformed baby – many think she is a witch 1536 May 2nd – Anne charged with adultery and treason 1536 May 15th – Anne found guilty 1536 May 19th – Anne executed 1556 May 30th – Henry Marries Jane Seymour 1537 October 12 Edward born – Jane dies 2 weeks later 1538 June Charles V and Francis I – signed 10 year truce in Nice 1538 December – Henry is excommunicated from the Catholic Church 1539 January – Charles V and Francis I sign further pact not to go into agreement with England with the others ok 1540 Jan 6th Henry marries Anne of Cleves 1540 June 9th– Henry’s marriage is annulled 1540 June 15th Thomas Cromwell accused of treason and heresy 1540 July 28 Thomas Cromwell executed / Henry married Catherine Howard.

# Henry VIII & His Ministers Knowledge. Key topic 3 The Reformation & its impact, 1529-40.

## The Break with Rome, Opposition to, and impact of the Reformation, 1534-40.

### Key Words

1	Henry started his reign as a strong Catholic. But broke away to secure his divorce from Catherine of Aragon. 1534 – Act of Succession & Act of Supremacy. Oaths & treason law. Opposition was limited. 1534-40 further Protestant direction – English Bible.
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### Key Events

2	1533 – Elizabeth Barton arrested and interrogated
3	1534 – Act of Succession, Supremacy, Treason Act. Barton executed.
4	1536 – 1 <sup>st</sup> set of Royal Injunctions issued to clergy.
5	1538 – 2 <sup>nd</sup> set of Royal Injunctions issued by Cromwell.
6	1539 – Six Articles (Catholic Doctrine)

### Key Questions

7. Which do you think was more significant in increasing Henry's power: The Act of Supremacy or Act of Succession? Why?	<ul style="list-style-type: none"> <li>• <b>Act of Supremacy</b> – England no longer under Pope's control. Henry head of English Church. Henry now had powers previously held by the Pope. BUT its practical significance must not be overstated. In practice, the pope had played a very small part in the affairs of the English church.</li> <li>• <b>Act of Succession</b> - Only children of Henry's second marriage would inherit throne. It completely changed the order of the succession. It established Anne Boleyn's position as queen by law. It was a significant step towards the final break with Rome.</li> </ul>
8. Was the opposition to the break with Rome a serious threat to Henry? Why?	<ul style="list-style-type: none"> <li>• 3 key figures opposed Reformation: Elizabeth Barton, Thomas More, John Fisher.</li> <li>• Most people accepted religious changes.</li> </ul>
9. 'In the years 1534 – 40 the English Church changed very little.' How far do you agree?	<ul style="list-style-type: none"> <li>• English church pushed towards a more Protestant direction – English Bible.</li> <li>• Superstitious practices, e.g. praying to relics were banned.</li> <li>• Act of Supremacy.</li> <li>• The Six Articles.</li> <li>• BUT Many elements of the Catholic Church service remained, e.g. traditional mass.</li> </ul>

10.	Sacraments	Special church ceremonies – baptism / marriage.
11.	The Eucharist	Bread and wine in church service. Last supper.
12.	Transubstantiation	Belief that bread and wine is transformed into body / blood Jesus.
13.	Indulgences	Certificate issued by Catholic church – forgiveness.
14.	Pilgrimage	Journey for religious reasons.
15.	Anti-Clericalism	Opposition to clergy.
16.	Vicegerent	King's deputy. Responsibility for running church.
17.	Celibate	unmarried / no sex.
18.	Doctrines	Teachings of the church.
19.	Protestantism	A religion – separate from Catholic church.
20.	Martin Luther	Protestant Reformer.
21.	Reformation	Reform of the Catholic Church.
22.	Vestments	Ornate priest clothing.
23.	Richard Hunne	Baby son died. Refused to pay mortuary fees. Sued and arrested. Died in cell. Murder????
24.	Act of Succession 1534	Only children of Henry's second marriage would inherit throne.
25.	Act of Supremacy 1534	England no longer under Pope's control. Henry head of English Church.
26.	Break with Rome	Henry moving away from the Church in Rome.
27.	Oath of Succession	Supported Anne Boleyn as Henry's Queen.
28.	Treason Act 1534	Death to anyone denying royal supremacy.
29.	Elizabeth Barton	Claimed Virgin Mary had appeared in vision and cured her.
30.	John Fisher	Challenged Henry. Executed for treason in 1535.

<p><b>TIMELINE</b></p> <p>1517 Martin Luther began to criticise the Catholic Church</p> <p>1521 – Henry described as 'Defender of the Faith by Pope Leo X</p> <p>1532 - The Submission of the Clergy</p> <p>Appeals to Rome</p> <p>1533 – Dr Edward Bocking published the Nun's book – including Elizabeth Barons prophecy Henry would burn in hell</p> <p>1534 – Act of Succession passed</p> <p>1534 - Act of Supremacy passed</p> <p>1535 – John Fischer made into a Cardinal</p> <p>April 1534 – Fischer refused to take Oath of Succession – executed in for treason July 1535</p> <p>July 1535 – Thomas More executed for treason</p> <p>1535 – Survey of workings of smaller monasteries and nunneries</p> <p>1536 – Act of 10 Articles</p> <p>1536 – Royal injunctions</p> <p>1536 – Act of the Dissolution of the Lesser Monasteries</p> <p>Late 1536 – Pilgrimage of Grace rebellion</p> <p>1537 – Bishops book</p> <p>1538 Royal injunctions of the clergy</p> <p>1538 – The Pope excommunicated Henry</p> <p>1539 Six articles published</p> <p>1539 – Act for the Dissolution of the Greater Monasteries</p>
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# Henry VIII & His Ministers Knowledge. Key Topic 3 The Reformation & its impact, 1529-40.

## Dissolution of the Monasteries and the Pilgrimage of Grace

### Key Words

**1** Monasteries provided care for the sick and educational work. Between 1536-40 all of England's monasteries were closed down. Henry saw them as a source of wealth. Had an impact on many. Henry's religious changes were unpopular in the North. Led to Pilgrimage of Grace. Uprising failed because pilgrims trusted and negotiated with Henry. Henry didn't keep promises & in 1537 executed the rebel leaders.

### Key Events

<b>2</b>	<b>1535 – Valor Ecclesiasticus</b>
<b>3</b>	<b>1536 March – 1<sup>st</sup> Act of dissolution of monasteries</b>
<b>4</b>	<b>1536 October-December – Pilgrimage of Grace</b>
<b>5</b>	<b>1538 – 40 voluntary dissolution of large monasteries</b>
<b>6</b>	<b>1539 – 2<sup>nd</sup> Act for dissolution of monasteries passed</b>

### Key Questions

<b>7. Explain why Henry dissolved the monasteries.</b>	<ul style="list-style-type: none"> <li>• Valor Ecclesiasticus – Survey into church wealth.</li> <li>• Money to finance wars. Protect England. Lower taxation.</li> <li>• Use land to gift to gentry to increase support for Henry.</li> <li>• Cromwell's commissions – 1535 – Moral state of monasteries.</li> </ul>
<b>8. Overall, do you think there were more winners than losers as a result of the dissolution of the monasteries?</b>	<ul style="list-style-type: none"> <li>• Winners = Henry VIII – became richer. Religious reformers / Protestants. Those able to buy monastic land / estates.</li> <li>• Losers = Those who relied on monasteries, e.g. poor &amp; sick. Poverty rose. Nuns. Monks. Lost accommodation, food, companionship.</li> </ul>
<b>9. 'The Pilgrimage of Grace was badly led.' How far do you agree? Explain your answer.</b>	<ul style="list-style-type: none"> <li>• Robert Aske – inspirational leader. Well armed rebels. Pontefract Articles. BUT decided to trust Henry. Misplaced faith. Hanged.</li> <li>• The agreement at Doncaster – Negotiated. Accepted king's offer. Henry didn't keep to the agreement.</li> </ul>

<b>10.</b>	<b>Dissolution</b>	Get rid of.
<b>11.</b>	<b>Monasteries</b>	Religious houses.
<b>12.</b>	<b>Valor Ecclesiasticus</b>	Survey into church wealth.
<b>13.</b>	<b>Pilgrimage of Grace</b>	Uprising against closure of monasteries.
<b>14.</b>	<b>Religious contemplation</b>	Spent time thinking about ways to serve God.
<b>15.</b>	<b>Monk</b>	Religious person
<b>16.</b>	<b>Nun</b>	Religious person.
<b>17.</b>	<b>Abbeys</b>	Larger rural institutions.
<b>18.</b>	<b>Priories / nunneries</b>	Medium sized houses.
<b>19</b>	<b>Friaries</b>	Smaller houses.
<b>20.</b>	<b>Visitations</b>	Official inspections.
<b>21.</b>	<b>Compendium compertorum</b>	Findings / report.
<b>22.</b>	<b>Cultural vandalism</b>	Destruction of monastic buildings.
<b>23.</b>	<b>Robert Aske</b>	Leader of Pilgrimage of Grace rebellion.
<b>24.</b>	<b>1534 Subsidy tax</b>	Tax. Led to Pilgrimage of Grace.
<b>25.</b>	<b>1536 Statute of Uses</b>	Tax on landed inheritances.
<b>26.</b>	<b>Pontefract Articles</b>	List of 24 demands.
<b>27.</b>	<b>Nicholas Melton</b>	Lincolnshire 'Captain Cobbler.' Rebel leader.
<b>28.</b>	<b>Thomas Howard, Duke of Norfolk</b>	In command of army. Negotiated with rebels.
<b>29.</b>	<b>Rebel</b>	Goes against something.
<b>30.</b>	<b>Uprising</b>	Rebellion / attempt to take control.

## 24 Superheroes – Stormzy (2020)

<b>Production Context</b>	<ul style="list-style-type: none"> <li>• Michael Ebenezer Kwadjo Omari Owuo Jr. (born 26 July 1993), known professionally as <b>Stormzy</b>, is a British rapper, singer and songwriter.</li> <li>• In 2014, he gained attention on the UK underground music scene through his <i>Wicked Skengman</i> series of freestyles over classic grime beats</li> <li>• Stormzy's first album, <i>Gang, Signs and Prayer</i>, was released independently. It was the first rap album to win the BRIT Award for British Album of the Year.</li> <li>• Superheroes was released on 13 December 2019 as part of Stormzy's second album, <i>Heavy is the Head</i>. This was the 5th best-selling album in 2020</li> <li>• The video for Superheroes premiered on 9 September 2020 when it was shown in school classrooms in London, Glasgow, Dublin and Manchester at the start of the term when schools re-opened after having been closed since March due to the Covid-19 pandemic.</li> <li>• The video was directed by British filmmaker Taz Tron Delix and produced by Argentinian animation studio 2veinte.</li> </ul>
<b>Social/ Cultural Context</b>	<ul style="list-style-type: none"> <li>• Stormzy dedicated the video to Chadwick Boseman following the actor's death in August 2020.</li> <li>• Stormzy was the first unsigned artist and the first grime artist to appear on <i>Later with Jools Holland</i> on BBC2.</li> <li>• In 2014, he was the first ever artist to win Best Grime Act award at the MOBOs (Music of Black Origin Awards).</li> <li>• He was also the first Black British solo performer to headline Glastonbury in 2019.</li> <li>• Stormzy has won the Brit Award for Best Male Solo Artist twice.</li> <li>• The video contains many references to popular culture chosen to represent Black culture in an empowering way. These include rappers Dave and Little Simz, and footballer Marcus Rashford.</li> <li>• The scene that depicts the Black Lives Matter protests reflects the social and political climate of the summer of 2020, shortly after the death of George Floyd in the US</li> <li>• The use of the Marcus Rashford shirt reflects social and political contexts as, at the time, Rashford had made a stand against the UK government on their decision to end the free school meals provided during the pandemic.</li> </ul>

### Key messages

- Stormzy is represented positively as a Black role model with the power to inspire the younger generation. From the start he is shown to be caring, taking time to support and inspire the central male character.
- The central character is represented as vulnerable and lacking in confidence at the start before he is guided by Stormzy on his hero's journey where he is inspired and empowered by the positive role models he is presented with.

# GCSE Media Studies

## Superheroes – Stormzy (2020)

### Representation

<b>Stormzy</b>	<ul style="list-style-type: none"> <li>Stormzy is represented positively as a Black role model with the power to inspire the younger generation. From the start he is shown to be caring, taking time to support and inspire the central male character. He is also reading <i>Noughts and Crosses</i>, which he presents to the police. This highlights the issue of racial profiling and represents education as the route to empowerment and equality.</li> </ul>
<b>Ethnicity</b>	<ul style="list-style-type: none"> <li>The events of the 2020 Black Lives Matter movement are depicted in the graffiti shot and in the scene where the protestors are holding placards and wearing face masks due to the Covid-19 pandemic.</li> <li>These scenes represent issues of Black empowerment, police prejudice and racial profiling (particularly with regard to stop and search).</li> <li>Before the video was aired, Stormzy sent a video message to schools welcoming pupils across the UK back to school and telling them they would be the first people anywhere to see the video. He told them: <i>“I think it’s important that you guys understand how powerful you are. Despite the colour of your skin, despite where you come from, despite your religion, despite whatever it is that you feel may be holding you back; you are a superhero. I wanted to make this video to inspire you guys, to let you know that the sky is the limit. To let you know that all those things inside of you, make you incredible.”</i></li> </ul>
<b>Gender</b>	<ul style="list-style-type: none"> <li>Genders are shown as very equal but also carrying out traditional roles: The ‘young Black queen’ chopping vegetables and washing dishes reinforces a stereotype of females being more powerful in domestic settings but also suggests that the young Black female is a superhero because she is caring for her grandmother.</li> <li>The scene where a young female character is shown anxiously looking at herself in the mirror represents the issue of body confidence. It is transformed into a moment of empowerment when she is inspired to embrace her natural beauty by looking at a picture of the music artist Little Sims. Her gesture codes show this transformation, and the picture highlights the importance of positive role models for young Black females.</li> <li>The ‘young Black kings’ are represented as empowered by education in the classroom scene and as talented and creative in the scene in the music studio.</li> </ul>

### Audiences

- The **target audience for *Superheroes***, Black British males and females from Generation Alpha, is younger than Stormzy’s typical target demographic (male and female millennials/fans of the grime genre) due to the focus on younger characters and the animated nature of the video.
- Older, Gen Z audiences reacted on social media to Stormzy’s use of lyrics from Keisha White’s *Someday*, which feature at the end of the *Superheroes* track. This is better known as the Tracy Beaker (CBBC, 2002–2005) theme tune and sparked comments such as ‘Man is singing Tracy Beaker riddims on his album?? Give that man a grammy’ (-joezay(@pxpajoe, December 13<sup>th</sup>, Twitter, 2019).

### Instruments/Line Up

Rock Band:  
Drum kit  
Additional percussion – cow bell, gong, shakers, conga,  
Lead electric guitar  
Bass guitar  
Synthesizers  
Male lead vocals – tenor voice  
Male backing vocals.

### Texture

The texture is homophonic. This is typical of rock and pop music.

### Dynamics

Most of the song is mezzo-forte whilst the choruses are forte.

### Rhythm

This song has some rhythmic variety. It uses ostinato rhythms, consisting almost totally of quavers, with constant use of syncopation.

### BACKGROUND

- Africa is a song recorded by the American rock band Toto in 1981
- It is a soft-rock love song with features of African music.
- The song was written by band members David Paich (born 1954) and Jeff Porcaro (born 1954, died 1992).



## Africa by TOTO

### Popular Music Set Work

### Tonality

The majority of the song is in B major whilst the choruses are all in A major

### Melody

The melody is mostly conjunct and includes occasional use of the pentatonic scale. The pitch range of the vocal line is just less than two octaves on the printed score, but it is wider on the recording with the vocal improvisations towards the end of the song.

### Structure

The song is verse-chorus in structure (another description for this is strophic). The overall structure of *Africa* is:

Introduction	Bars 1 – 4	(4 bars long)
Verse 1	Bars 5 – 39	(35 bars long)
Chorus 1	Bars 40 – 57	(18 bars long)
Link 1	Bars 58 – 65	(8 bars long)
Verse 2	Bars 14 – 39	(26 bars long)
Chorus 2	Bars 40 – 57	(18 bars long)
Link 2	Bars 58 – 65	(8 bars long)
Instrumental	Bars 66 – 82	(17 bars long)
Chorus 3	Bars 40 – 92	(22 bars long)
Outro	Bars 93 – 96	(4 bars long)

### Tempo and Time Signature

The tempo is described as a moderately fast. What is moderately fast?

The time signature (beats in a bar) is 2/2 (Split Common Time). It is a metre with 4 Quaver note beats.

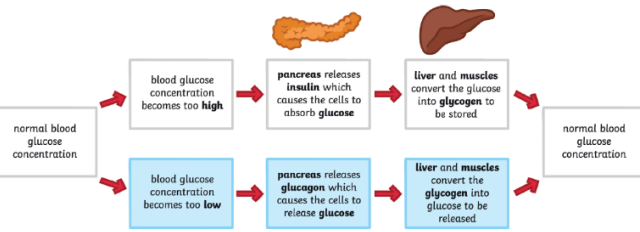
### Harmony

The harmony can be described as diatonic.

**Control of blood glucose:**

The pancreas is the organ and gland which monitors and regulates the blood glucose concentration.

If blood glucose becomes too low, the pancreas releases glucagon which causes the stored glycogen to be converted back into glucose.

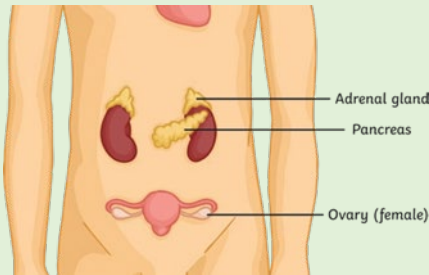


**Diabetes**

There are two types of diabetes: type 1 and type 2.

Type 1 diabetes is a disorder affecting the pancreas. In type 1 diabetes, the pancreas does not produce enough insulin to control the blood sugar level and so the levels become higher than normal. Type 1 diabetes is usually treated by injections of insulin.

Type 2 diabetes is a disorder of effector cells which no longer respond to the hormones released from the pancreas. Type 2 diabetes can usually be managed through lifestyle choices such as maintaining a carbohydrate-controlled diet and regular exercise.

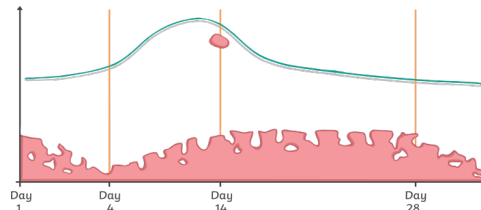


The risk of developing type 2 diabetes is higher in people who are obese (have a BMI >30).

**The Menstrual Cycle**

The menstrual cycle occurs in females, approximately every 28 days. It is a cyclical process of the building of the lining of the uterus and ovulation. If the egg become fertilised by a sperm, then pregnancy follows.

If the egg is not fertilised, then the lining of the uterus is shed away and leaves the body as the menstruation.



Depending on the reason for the infertility, there are different methods of treatment and technologies to help women become pregnant.

The hormones FSH and LH can be given in a 'fertility drug' to help stimulate the normal cyclic processes and enable the woman to become pregnant naturally.

In Vitro Fertilisation (IVF) is a treatment which involves several stages:

The woman is given FSH and LH to stimulate the ovaries to mature and release several eggs.

The eggs are then collected from the woman and fertilised using sperm collected from the man. This is done in the lab (in vitro means "outside the living organism").

The fertilised eggs develop into embryos. At the early stage of development (blastocyst), one or two embryos are inserted into the woman's uterus for implantation.

Fertility treatments offer couples the chance to have their own baby. However, the processes are often very stressful and emotional. The success rates are low. The underlying causes of the infertility are not usually being treated. Fertility treatments can carry a higher chance of multiple births (twins, triplets or more), which carries a risk to both the mother and the unborn babies.

Word	Definition
Homeostasis	is the regulation of a constant internal environment to ensure that conditions are optimum for metabolism.
Neurone	They use electrical impulses and chemical signals to transmit information between different areas of the brain, and between the brain and the rest of the nervous system.
Regulation	is the controlling of an activity or process, usually by means of rules.
Hormone	are your body's chemical messengers. They travel in your bloodstream to tissues or organs. They work slowly, over time, and affect many different processes.



### Crude oil and alkanes:

Hydrocarbons are compounds that are made up of the elements hydrogen and carbon only.

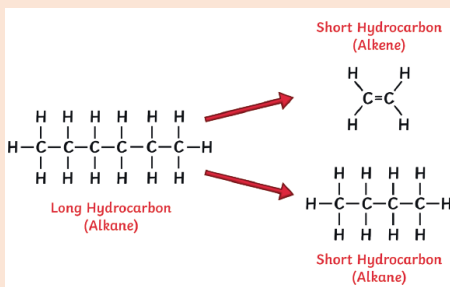
Crude oil is a non-renewable resource, a fossil fuel. It is made up of a mixture of compounds, most are long chained hydrocarbons.

Alkanes are held together by single bonds and form a homologous series. This means that they are a family of hydrocarbons that share similar chemical properties. The general formula is  $C_nH_{2n+2}$ .

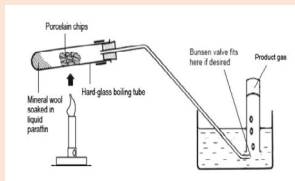
The first four alkanes are: methane, ethane, propane and butane.

### Cracking:

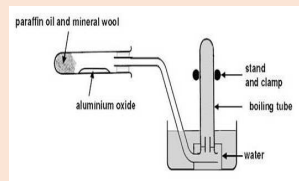
Long-chain hydrocarbons can be broken down into shorter, more useful hydrocarbon chains.



#### Steam Cracking



#### Catalytic cracking



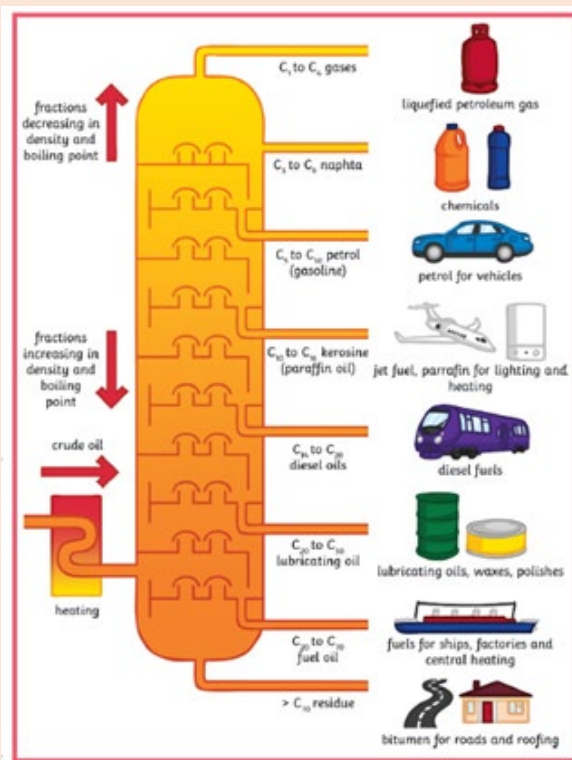
### Fractional distillation:

Fractional distillation is used to separate a mixture of long-chain hydrocarbons in crude oil into smaller, more useful fractions. The fractions boil at different temperatures due to the difference in the sizes of the molecules.

Crude oil is heated and enters the column. The column is hot at the bottom and cooler at the top.

Short chain hydrocarbons are found at the top of the column. This is because they are held together by weak intermolecular forces.

Long-chain hydrocarbons are found at the bottom of the column.

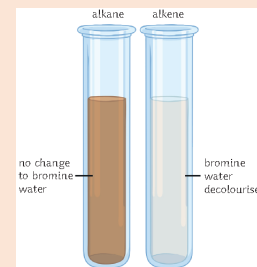


Word	Definition
Alkane	held together by single bonds and form a homologous series.
Alkene	have a double bond
Boiling point	is the temperature at which a liquid changes into a gas.
Evaporate	when a liquid is heated and changes state into a gas.
Condensate	When a gas condenses into a liquid



Combined science HT – chemistry - organic

Alkenes have a double bond. The general formula is  $C_nH_{2n}$ .



Name of Alkene	Structural Formula	Molecular Formula
ethene	$\begin{array}{c} H & & H \\ & \backslash & / \\ & C = C \\ & / & \backslash \\ H & & H \end{array}$	$C_2H_4$
propene	$\begin{array}{c} H & H & H \\   &   &   \\ H-C & -C & =C \\   & &   \\ H & & H \end{array}$	$C_3H_6$
butene	$\begin{array}{c} H & H & H & H \\   &   &   &   \\ H-C & =C & -C & -C-H \\   & &   &   \\ H & & H & H \end{array}$	$C_4H_8$
pentene	$\begin{array}{c} H & H & & H & H \\   &   & &   &   \\ H-C & -C & -C & =C & -C-H \\   &   &   & &   \\ H & H & H & & H \end{array}$	$C_5H_{10}$

Bromine, when added to an alkane, will remain brown/orange.

When added to an alkene, the bromine will change from brown/orange to colourless. This is because alkenes are unsaturated hydrocarbons.

**Momentum:**

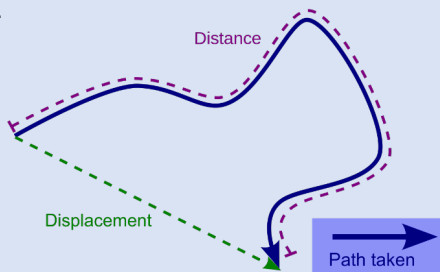
**Momentum (N) = mass (kg) x velocity (m/s)**

The law of conservation of mass states that the total momentum before an event is equal to the total momentum after an event.

**Distance vs. displacement:**

**Distance** is a **scalar** quantity. It measures how far something has moved.

**Displacement** is a **vector** quantity. It measures how far something has moved and is measured in a straight line.



**Stopping distance = thinking distance + braking distance**

**Reaction time** is how long the driver takes to respond to a hazard. This is affected by:

- Tiredness
- Drugs
- Alcohol
- Distractions

The **braking distance** is the distance travelled once the brakes are applied until it reaches a full stop. It is affected by:

- Adverse weather conditions
- Poor vehicle condition

**Distance-time graphs and velocity-time graphs:**

Graph Feature	Distance-Time Graph	Velocity-Time Graph
x-axis	time	time
y-axis	distance	velocity
gradient	speed	acceleration (or deceleration)
plateau	stationary (stopped)	constant speed
uphill straight line	steady speed moving away from start point	acceleration
downhill straight line	steady speed returning to the start point	deceleration
uphill curve	acceleration	increasing acceleration
downhill curve	deceleration	increasing deceleration
area below graph		distance travelled

**Newton's Laws**

**Newton's first law:**

If the resultant force acting on an object is zero:

- A stationary object will remain stationary
- A moving object will continue at a steady speed in the same direction

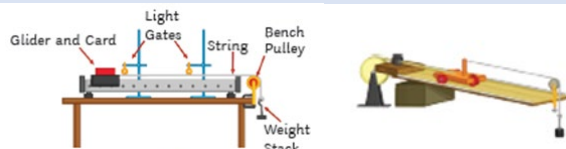
**Newton's second law:**

The acceleration of an object is proportional to the resultant force acting on it and inversely proportional to the mass of an object

$F = m \times a$

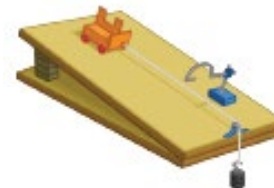
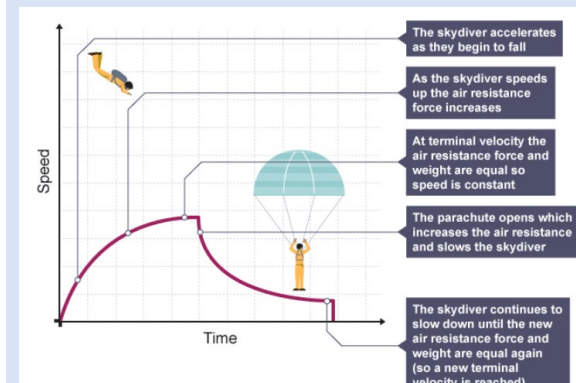
**Newton's third law:**

When two objects interact, the forces acting on one another are always equal and opposite.



Word	Definition
Speed	s a measure of how fast an object is moving
Velocity	a vector quantity that refers to the rate at which an object changes its position.
Displacement	is the distance moved in a straight line, in a given direction, from the starting point
Distance	is a scalar quantity that refers to "how much ground an object has covered" during its motion.
Stopping distance	Stopping distance = Thinking distance + Braking distance
Momentum	can be defined as "mass in motion." All objects have mass; so if an object is moving, then it has momentum

**Terminal velocity**





# OCR Sports Science Knowledge Organiser

## Nutrition and Sports Performance (R183)

### Topic Area 1: Nutrients needed for a healthy, balanced nutrition plan )

#### The characteristics of a balanced nutrition plan(1.1)

- Meeting the nutritional requirements of an individual
- Including foods from all of the food groups
  - Carbohydrates: Fats
  - Proteins
  - Fibre
  - Water
  - Vitamins and minerals
  - Containing a variety of foods
  - Suiting the needs/tastes of the individual

#### The role of nutrients in sport and their sources (1.2) - Carbohydrates and fats

Carbohydrates give a quick supply of energy – sugars and starchy carbohydrates

- Simple carbohydrates – oranges, biscuits
- Complex carbohydrates - rice, potatoes
- Fats – give a slower supply of energy and transport some vitamins around the body – include good fats and bad fats
- Bad fats – vegetable oil, lard
- Good fats – nuts, salmon

#### The role of nutrients in sports and their sources (1.2)-Proteins, water, fibre ,vitamins and minerals

- Proteins repair muscle damage
- Fibre helps digestion and prevents constipation
  - Water keeps the body hydrated, regulate temperature, helps remove waste products
  - Vitamins and minerals help strengthen bones, maintain a healthy immune system

**What nutrients are** (e.g. chemicals a living organism needs in order to live and grow)

Sports nutrition



#### Healthy Eating & Sports Nutrition



# OCR Sports Science Knowledge Organiser

### Topic Area 2:Applying differing dietary requirements to varying types of sporting)

#### 2.1: The dietary requirements of endurance/aerobic activities

##### 2.1.1: Before endurance/aerobic activity:

- Hydration
- Carbohydrate loading

##### 2.1.2: During endurance/aerobic activity:

- Maintain hydration
- Maintain carbohydrate levels

##### 2.1.3: After endurance/aerobic activity



#### 2.2:The dietary requirements of short intense/anaerobic activities

##### 2.2.1: Before short intense/anaerobic activities:

- Use of carbohydrates (not carbohydrate loading)
- Use of proteins

##### 2.2.2: During short intense/anaerobic activities

##### 2.2.3: After short intense/anaerobic activities:

- Rehydrate immediately
- Reload appropriate nutrients

#### 2.3: The dietary requirements of strength based activities

##### 2.3.1. Before strength based activities:



- High in protein
- Limit excess body fat

##### 2.3.2. During strength based activities

##### 2.3.3 After strength based activities:

- Rehydrate immediately
- Reload appropriate nutrients



Health and Social Care Knowledge Organiser: Component 2 Health and Social Care Services and Values	
Learning Aim A: Understand the different types of health and social care services and barriers to accessing them	Learning Aim B: Demonstrate care values and review own practice
<p><i>Providing good health and social care services is very important and a set of 'care values' exist to ensure this happens. Care values are important because they enable people who use health and social care services to get the care they need and to be protected from different sorts of harm.</i></p>	
<p><b>A1 Health and social care services</b></p> <p><b>1. Different health care services and how they meet service user needs</b></p> <ol style="list-style-type: none"> <li><u>Primary care</u>, e.g. dental care, optometry, community health care</li> <li><u>Secondary &amp; tertiary care</u>, e.g. specialist medical care</li> <li><u>Allied health professionals</u>, e.g. physiotherapy, occupational therapy, speech and language therapy, dieticians</li> </ol> <p><b>2. Different social care services and how they meet service user needs</b></p> <ol style="list-style-type: none"> <li><u>Services for children and young people</u>, e.g. foster care, residential care, youth work</li> <li><u>Services for adults or children with specific needs</u> (learning disabilities, sensory impairments, long-term health issues) e.g. residential care, respite care, domiciliary care</li> <li><u>Services for older adults</u>, e.g. residential care, domiciliary care</li> <li><u>Role of informal social care provided by relatives</u>, friends and neighbours</li> </ol>	<p><b>B1 Care values</b></p> <ol style="list-style-type: none"> <li><u>Empowering</u> and promoting independence by involving individuals, where possible, in making choices</li> <li><u>Respect</u> for the individual by respecting service users' need, beliefs and identity</li> <li>Maintaining <u>confidentiality</u></li> <li>Preserving the <u>dignity</u> of individuals to help them maintain privacy and self-respect</li> <li><u>Effective communication</u> that displays empathy and warmth</li> <li><u>Safeguarding and duty of care</u></li> <li><u>Promoting anti-discriminatory practice</u> by being aware of types of unfair discrimination and avoiding discriminatory behaviour</li> </ol> 
<p><b>A2 Barriers to accessing services</b></p> <p><b>1. Types of barriers and how they can be overcome by the service providers and users</b></p> <ol style="list-style-type: none"> <li><u>Physical barriers</u>, e.g. issues getting into and around the facilities</li> <li><u>Sensory barriers</u>, e.g. hearing and visual difficulties</li> <li><u>Social, cultural and psychological barriers</u>, e.g. lack of awareness, differing cultural beliefs, social stigma, fear of loss of independence</li> <li><u>Language barriers</u>, e.g. differing first language, language impairments</li> <li><u>Geographical barriers</u>, e.g. distance of provider, poor transport links</li> <li><u>Intellectual barriers</u>, e.g. learning difficulties</li> <li><u>Resource barriers for service provider</u>, e.g. staff shortages, lack of local funding, high local demand</li> <li><u>Financial barriers</u>, e.g. charging for services, cost of transport, loss of income while accessing services</li> </ol>	<p><b>B2 Reviewing own application of care values</b></p> <p><b>1. Key aspects of a review</b></p> <ol style="list-style-type: none"> <li>Identifying own strengths and areas for improvement against the care values</li> <li>Receiving feedback from teacher or service user about own performance</li> <li>Responding to feedback and identifying ways to improve own performance</li> </ol> 



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