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Knowledge Book 2024-25

Name:

Form:

YEAR 9

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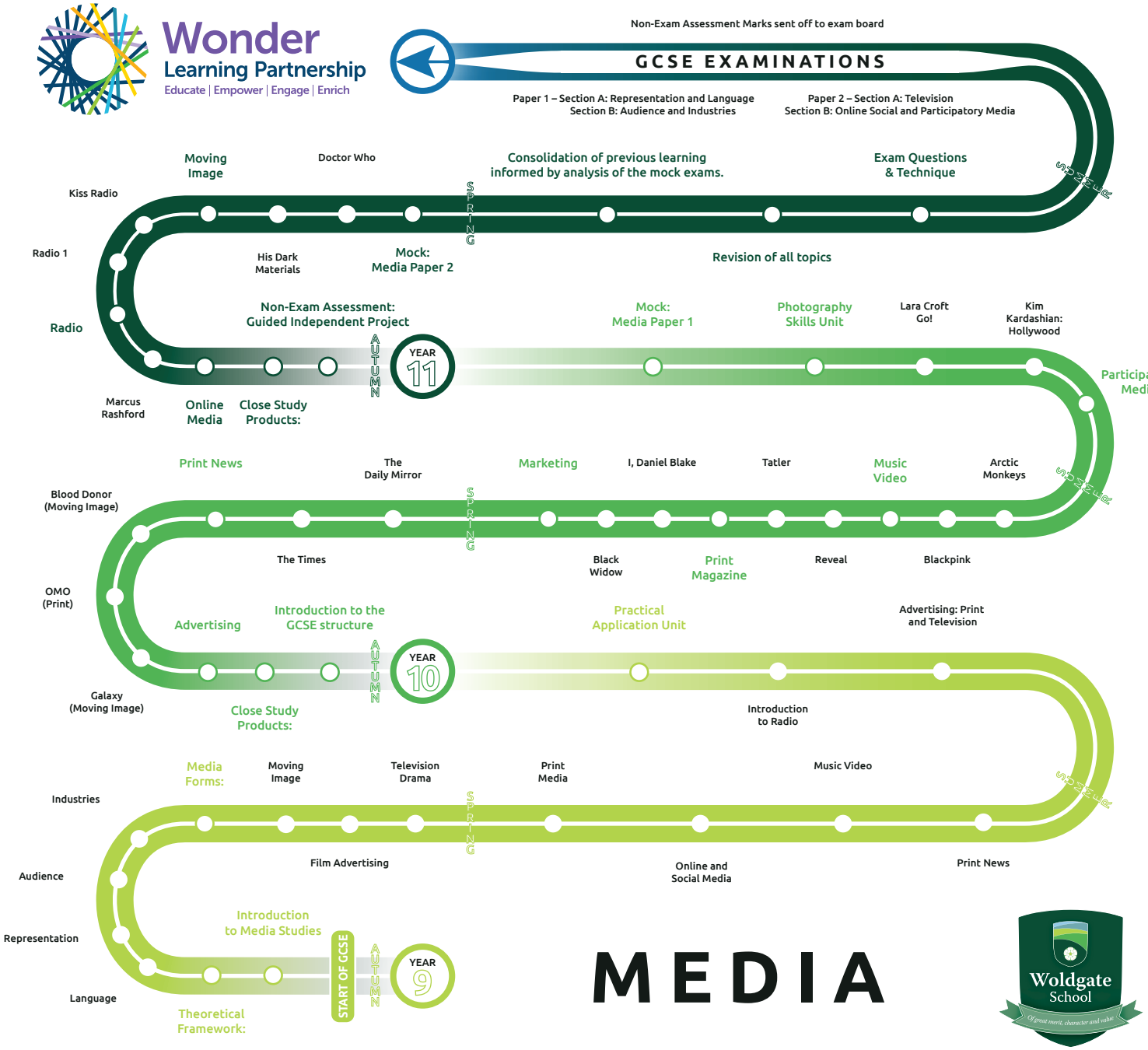
MEDIA



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Moving Image Knowledge Organiser 1

The following Media Language choices, when analysing a Moving Image text (TV Show, Music Video, A/V advert) can give information about the:

- **Characters/setting or situation**
- **Representation of themes such as Age, Gender or Ethnicity**
- **Genre of the text, or the Narrative it is following**
- **The overall themes or ideas the text is exploring**
- **Intended effect on the viewer**

Mise-En-Scene: Aspects to Analyse	
Lighting/ Colour	How is the scene lit? Are there heavy shadows, or is everything easily visible. Are some parts lit and others dark? What colours are most common? Are there patterns of colours (reds, blues etc)? Is it black and white? Do the colours have particular connotations/meanings?
Costume, Hair, Makeup	What do the costume choices reveal about the characters? Do they present them in a certain way? Do they create stereotypes? Do they link to a particular group, period in history or class?
Body Language/ Facial Expressions	What do the body language and facial expression choices reveal about the way a character is thinking? What does it show about relationship between characters? How are they being represented- positively or negatively? Do they help create a genre, or help the viewer understand the narrative?
Positioning	Who is on screen? Are they centre or off to one side? Sharing with anyone else? Are they in the foreground (front of the shot) or in the background? Are they bigger/smaller than others? What might this reveal about them or the themes of the show?
Props & Setting	What props are present? Do they help to give the text a genre or move the narrative along? Are there obvious clues as to what the setting is? How can we tell where the action is taking place?

Sound: Aspects to Analyse	
Diegetic Sound	Sound produced **within the scene/the world of the text**. EG Dialogue, doorbells, dogs barking, sirens etc
Non- Diegetic Sound	Sound **added in afterwards- not in the world of the text** EG Voiceover, Sound FX, Soundtrack (Music) Laughter

Cinematography: Aspects to Analyse	
Shot Length (Shot Type)	Main shot lengths: **Extreme long shot** **Long Shot** **Mid Shot** **Close Up** **Extreme close up**
Shot Angle	Moving from low to high: **Worms-Eye view** **Low angle** **Eye level** **High Angle** **Birds-eye view**
Camera Movement	**Tracking**- following the subject. **Tilting**- moving up and down on a vertical axis. Camera does not move, frame does. **Panning**- moveing from left to right on a horizontal axis. Camera does not move, frame does. **Zoom**- moving in or out with the focus, going from Longer shot length to shorter, or vice-versa.
*****See separate knowledge organisers for more info on each of these, their function and how to spot them*****	

Editing: Aspects to Analyse	
Pace	How long each shot lasts, before moving to the next shot. Does it last long, or are the changes between shots quick paced and fast edited?
Cut	When one shot moves to the next, it is called a cut (For example, from a long shot to a close up). What you need to look for is what **links** the two shots, and why have they **changed** to a new shot?
Transitions	Sometimes one shot doesn't cut into the next one, it might fade or change gradually. The main transistions are: **Fade to white/black and fade from white/black** **Dissolve-** where one shot 'melts' into the other, overlapping.
*****See separate knowledge organisers for more info on each of these, their function and how to spot them*****	

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GCSE EXAMINATIONS

1 Paper

YEAR 11

SUMMER
- Revision
- Performing Solo
- NEA Composing

SPRING
- NEA Composing from a brief
- NEA Performing; Solo
- NEA Performing; Ensemble
- Free Choice composition
- Final Composing portfolio

AUTUMN
- Set Work 'Release'
- Mock Examination
- Recap and Revision
- Set Work, 'Samba Em Preludio'
- Fusions

YEAR 10

SUMMER
- Composing; Film project
- Music for stage and screen
- Performing
- Music for stage and screen

SPRING
- Solo Performance
- Set work, 'Defying Gravity'
- Ensemble Performance
- Set Work, 'Star Wars'

AUTUMN
- Composing
- Vocal music
- Composing
- Composing
- Set Work, 'Music for a while'
- Vocal music
- Set Work 'Killer Queen'
- Ensemble Performance
- Set Work 'Pathetique Sonata'

YEAR 9

SUMMER
- Song writing & Rap
- Theory and listening, Harmony and tonality
- Reggae
- Solo Performance
- Composing with Chords
- Composing a 12 bar blues

SPRING
- Theory and listening, Elements of Music
- Periods of Classical Music
- Periods of Classical Music
- Set Work 'Brandenburg Concerto No. 5'

AUTUMN
- Editing using virtual studio workstation
- Harmony in song composition
- Composing in Layers
- Club Dance Remix
- Samba
- Composing chord progressions, bass lines and melodies

START OF GCSE

YEAR 8

SUMMER
- Minimalism
- Using Music technology to create a multi-layered composition
- Culture of Indian Music
- Improvising around notes of an Indian Raga

SPRING
- Appraising music that uses Chromaticism
- Appraising music from the genre of minimalism
- Indian Music
- Key timbres and structure of Indian music

AUTUMN
- Chromaticism
- Composing and recording a 4/8 bar melody
- Melody Writing
- Sharps and Flats
- Editing Music using music technology

YEAR 7

SUMMER
- Rhythm Composition
- Elements of Music
- Understanding Melody
- Music notation
- World of Rhythm
- Playing the Djembe

SPRING
- Recognising Pitch and Rhythm
- Rhythm Performance
- Notes on a keyboard
- C Major Scale
- Music of Africa
- Polyrhythmic performance

AUTUMN
- Basic symbols
- Bridging Unit
- Pitch and duration
- Music notation

Musical Futures: Ukeleles/Guitars

MUSIC

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GCSE MUSIC

We use this log to help you us analyse many Musical features of our set works.

This is our KNOWLEDGE ORGANISER. You will use these in other subjects but in Music you must relate what's written here to what you can hear when listening to the music!

Structure

- This piece combines the forms of **ternary form (ABA)** and the **fugue**.
- In a **fugue** there are three different sections, but here we only get two different sections and then the first section is repeated. Therefore, we can describe this as **fugal/fugato** (in the style of a **fugue**).
- The **ternary form** could also be referred to **da capo** form too as the last section is a note for note repeat.
- Section A (bars 1-78)
- Section B (bars 79-232) – this could be referred to as having **a ritornello structure**
- Section A (bars 233-end)

Tonality/Harmony

- Based in **D major** (Section A starts in D major and features brief modulations to **A major** (the dominant key) and **E major**, (the dominant of the dominant), which is known as a secondary dominant.
- Section B is in the **relative minor (B minor).** Section B also explores, F# minor, A major and E minor.
- Section A is obviously a repeat.
- Each section ends with a **Perfect cadence (V-I)**
- Chords are **diatonic** and simple root position or first inversion chords.
- **Pedal notes** are used in B section.
- Some use of **appoggiaturas** and **suspensions**.

Dynamics

- This piece has very few dynamic markings like most Baroque pieces.
- Most Baroque piece use **Terraced Dynamics** (clear shifts between loud and soft passages without any gradual changes).
- Instead the changes of dynamics are usually left to the experience of the performers or are an effect of the texture changing.

Metre/Rhythm

- **2/4** but could be notated as 6/8 (compound) because of the use of triplets, giving it a **6/8 feel**.
- Very much like a **Gigue** – a dance in compound duple time.
- Use of **triplets** and **dotted rhythms.**

Texture

- The majority of the piece is **contrapuntal** (polyphonic).
- Section A is in a **fugal** style (**fugato**).
- Lots of use of **imitation.**
- **Brief monophonic** texture passages in places.
- Stretto is used just before the end of Section A (bar 64)
- **Doubling** is used (where parts literally double up playing the same)
- **Tutti** sections
- Use of **unison** in places

Tempo

- **Allegro** (Fast and lively) – doesn't change

Timbre/Sonority/Instruments

- 7 instruments in total
- **Concertino (Solo Instruments)**
- Flute (flauto), violin (violino principale) and harpsichord (Cembalo)
- **Ripieno (Accompaniment Instruments)**
- Violin (violino), viola, cello (violoncello), double bass (contrabasso) and harpsichord (the harpsichord serves as both solo and accompaniment in this piece).
- **Basso Continuo** – this is provided by the harpsichord who plays chords indicated by the figured bass. Bass notes are played by the double bass.
- **Virtuoso** – this style of playing is quite prominent in the harpsichord solos

Melody

- The main melody in this piece is known as the **subject**. It is mostly conjunct though there are a few leaps too.
- Lots of **scalic** runs especially on the Harpsichord.
- Use of **ornaments** to decorate the melody including **trills** and **appoggiaturas.**
- Use of **episodes** in section B (these are the shortened versions of the subject when they return).

Title and Composer

BACH – Brandenburg Concerto No. 5 in D major, 3rd movement

Listening Log

GCSE Music

Listening Log

Composition Techniques used (e.g. syncopation, counterpoint, cross rhythms)

- ***Fugato*** and ***Fugal*** means 'in the style of a fugue', although usually not sticking to the strict rules of the ***Fugue*** Form.
- A ***Fugue*** is a contrapuntal (polyphonic) composition in which a short melody or phrase (known as the ***subject***) is introduced by one part and taken up by others, developed by interweaving parts.
- ***Imitation*** – where a melody is played in one part and then copied or modified slightly, a few notes later in another part.
- ***Stretto*** – in a fugue this means close imitation of the subject.
- ***Tutti*** – means when all parts in the ensemble are playing at the same time
- **Gigue** – this is a type of lively dance used in the Baroque period in a compound duple time.
- ***Ritornello*** form means 'a little return'. It refers to the opening music of a piece which often gets shortened when it returns known as (episodes).
- ***Episode*** therefore is a shortened or adapted/developed version of the original melodic ideas from earlier in a piece of music.
- ***Da Capo*** means 'from the top' and often would be written at the end of the B section and Fin (finish) at the bar to stop on the repeat. Instead of having to write out the whole section again.
- ***Diatonic*** means using notes/chords that belong to the current key (the opposite being chromatic, when notes/chords move outside of the key).
- ***Suspension*** is when a note continues into the next chord creating a moment of dissonance before resolving.

Other information (e.g. Guitar effects, lyrics information, playing styles of instruments/technology)

- ***Virtuoso*** is an individual who possesses outstanding talent and technical ability on a particular musical instrument.
- ***Simple*** time signatures have 2,3 or 4 as their top number and you count every beat.
- ***Compound*** time signatures have 6, 9 or 12 as their top number and the requires the music to be divided up into threes. Counting each group of three rather than the individual beats.
- ***Conjunct*** means moving by step (the opposite being disjunct, moving by leap)
- ***Scalic*** is exactly as it sounds, music that is based on scales ascending and/or descending in pitch.
- ***Motif*** is a short melodic phrase.
- ***Sequence*** means the repetition of a musical phrase at a higher or lower pitch than the original but keeping the same shape and intervals.
- ***Subject*** is the short main theme of a fugue. This is used in other styles and structures too and often refers to the main melodic material.
- ***Ornaments*** are extra notes used to decorate a melody. These are usually shown by small notes or symbols immediately before or above the note. Examples include the trill (*tr*), acciaccatura, appoggiatura, mordent and turn.
- ***Pedal Note*** is a type of harmonic device where a note is repeated while the harmony/chords change around it.

Context, affect and background to the piece and composer

- ***Concerto*** – A concerto is a large scale composition for orchestra with a soloist (**solo concerto**) or group of soloists (***concerto grosso***). A concerto is often written in three movements typically with the first and third movements being fast and the second movement being slow.
- This piece is an example of ***Chamber Music.*** Which is music that was composed for the home, as opposed to that written for the theatre or church.
- Bach wrote this piece for the Margrave of Brandenburg (Royalty) in Germany in **1721**.

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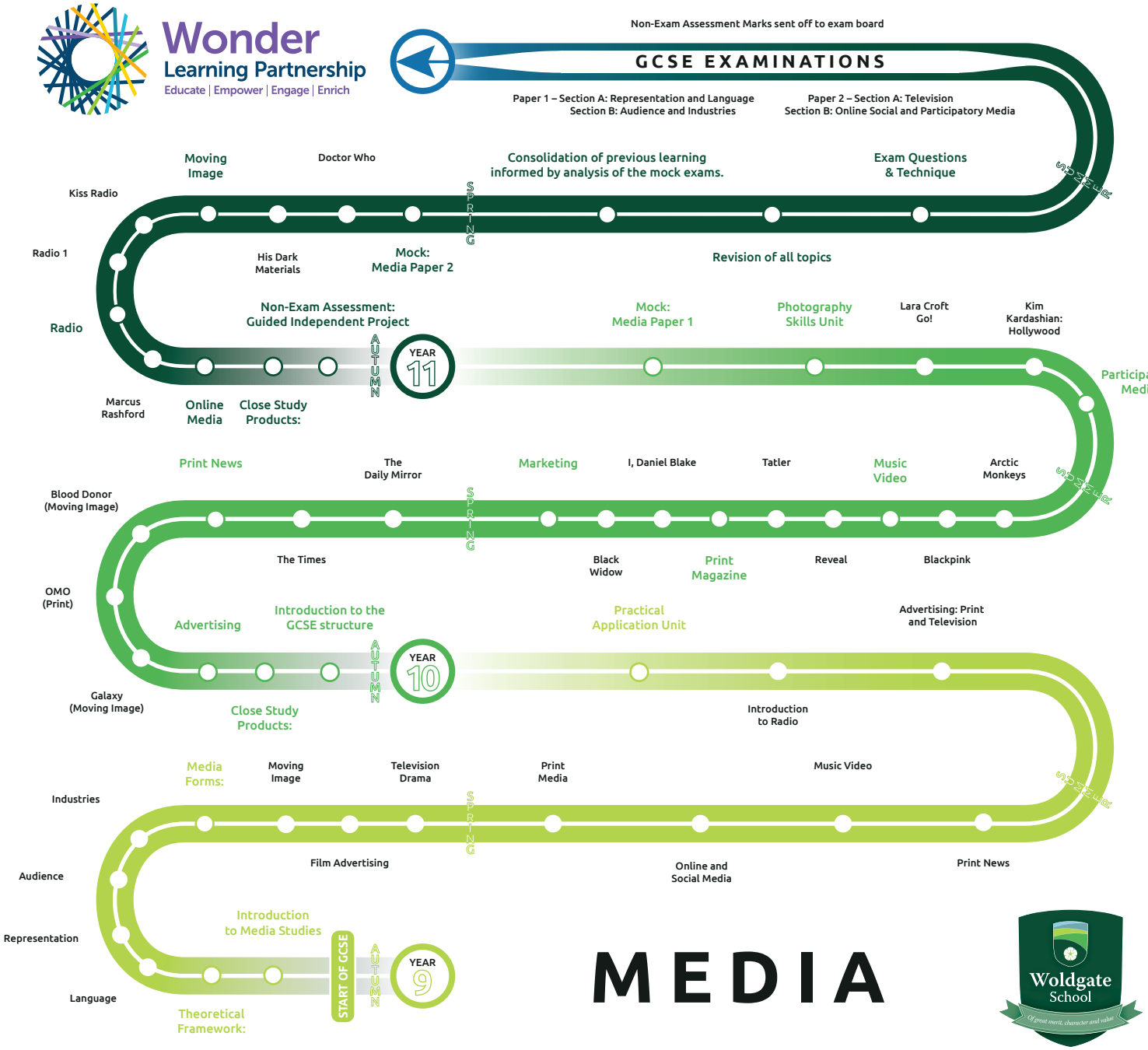
MEDIA



Newspapers Knowledge Organiser
Industry & Audiences Overview

Overview

- Newspapers have been published in Britain for over 300 years
- Lots of titles have come and gone. Most recently, the *Independent* became online-only
- Challenges from new technologies have caused pressure on the industry, causing lots of local and national titles to close or downsize.
- Advertisement is a very important source of funding in the newspaper market, and as more newspapers offer online content, the scope for advertising to a wider audience grows. The effectiveness of advertisement in print newspapers is decreasing as the number of people buying newspapers goes down.
- There are two main type of newspaper- tabloid and broadsheet.
- Most newspapers have a 'Political allegiance'- left and right wing, Left wing support labour and socialism, right wing support the Conservatives/Tory's and conservatism
- Some newspapers are also 'populist' meaning they echo the popular views of the public.

Ownership

- Newspapers are powerful- although online media is growing, newspaper still play an important role in communicating messages and values to the public.
- In the UK there are a small number of companies that own the majority of the newspapers and other publishing products such as magazines and journals. A small group controlling an industry is called an **oligopoly.**
- 3 companies (including News UK, which publishes the Sun, one of the set products) own 70% of the UK newspapers. This limits the range of viewpoints and messages the readers will have access to, especially as the two biggest newspapers in the UK (The Sun & The Daily Mail) are both politically right-leaning.

New technologies & their effect on industry

- Consumers can now access up-to-date news on their smartphones and tablets wherever they go, for free, which makes the act of buying a news paper, with essentially yesterday's news in it, seem old-fashioned. As a result, sales of newspapers are declining every year.
- Newspapers have responded to this challenge from technology- creating interactive websites and social media feeds that are regularly updated, so the consumer can still get news from the newsbrand such as the Sun etc, just in a different format to reading it in a printed newspaper.
- This electronic news distribution can also bring in a wider target audience than the traditional print method.
- Some newspapers make all the content of their newspaper available online for free, some offer digital editions of their newspaper to be read on tablets and on their own apps. Some charge a subscription to access this content online, such as the Times (sister paper to the Sun)
- Faster printing presses- a full set (for distribution to a region or city etc) of newspapers can be printed in a faster time, giving more time to collate the news, allowing later deadlines and so news can be more up to date (though still not as up to date as online/through social media)
- DTP- Desk Top Publishing. All newspapers are created digitally, allowing content to be changed quicker, making the news more up to date.

Gatekeeping

- Within the publishing process for a newspaper, there are certain figures responsible for deciding what is and isn't news-worthy. These people include the executives of the companies that own and publish the newspapers, the chief Editor and section Editors and the journalists themselves.
- These people all decide what is newsworthy- what is and isn't news, and what makes it into their paper, and where it is placed

- Factors such as the political allegiance of the newspaper, whether it is broadsheet or tabloid and the company that owns it will all affect which stories they cover.

But in general, the list of factors that affect is (and in how much detail) a story will be covered are as follows:

- **Timeliness**- how close in time to an event the story can be published
- **Proximity**- how close (geographically) the event happened to the readership of the newspaper
- **Impact or Consequences**
- **Rarity/Unexpectedness**
- **Negativity**- generally negative stories are more often covered than positive ones.
- **Unambiguity (Simplicity)**- the story needs to be simple- the more complex, the less newsworthy. (This also differs between **broadsheet and tabloid)**
- **Elite nations/People**
- **Human interest/ Personalization**- readers will engage with something on a personal level if they can **empathise**
- **A 'Narrative'**- similar to empathy, readers need a story to grab on to- characters, a setting, a plot, to help them understand the story

Regulation & The Leveson Enquiry

- Newspaper are **self regulated**- they are not controlled by the government, so they are independent.
- The body that regulates newspapers and magazines is called the **Independent Press Standards Organisation (IPSO).** It is made up of executives within the newspaper industry, such as senior figures within major newspapers, as well as having members who are lawyers, ex journalists etc- all people with experience of the industry.
- It is given power to oversee regulation of the press by the government- so they have to keep the press regulated in order to maintain a '**Free press'** (A media free from interference from the government)

- IPSO's main functions are to:
  1. Set the rules for what can and cannot be published- called the **Editors Code of Practise**. (This code balances the public's **right to know** vs an individual's **right to privacy**)
  2. Provide advice to newspapers and magazines for how to follow the Code
  3. Respond to complaints and potentially punish (fines etc) publications which break the code.

The **Editors Code** relates to privacy of individuals, accuracy of reported stories, discrimination or stories involving those under 18.

LEVESON ENQUIRY

In 2011, there was a phone-hacking scandal (where celebrity and 'ordinary people's phones were being hacked into to gain information for stories) at *News of the World*. As a result, an enquiry was set up into the ethics and practices of the press, and the outcomes were:

- The *News of the World* was shut down
- The old regulator (PCC) was replaced with IPSO
- A new code of standards (The Editors Code) was established
- IPSO was given new powers to punish and deal with breaches of the code and complaints

Audiences

Although online news is growing in popularity, print newspapers still attract a very large audience. 61% of people ages 15 and over consume a print newspaper

The newspaper offers specific **uses and gratifications** such as:

- A familiar form- everyone knows how a newspaper is set out
- Clear structure (news at front, sport at back etc)
- Non-technological- no connection to internet, no battery issues etc
- Newspapers fit into routines- breakfast, commute to work etc
- More in-depth coverage than some online sources

Audience data for newspapers is in two forms- Circulation, the number of copies printed, and Readership, the number of people who read the paper (which will be bigger considering some newspapers are read by multiple people- in cafes, waiting rooms, multiple people within a household etc)

Audiences for newspapers are still grouped according to **Demographic** and **Psychographic** data.

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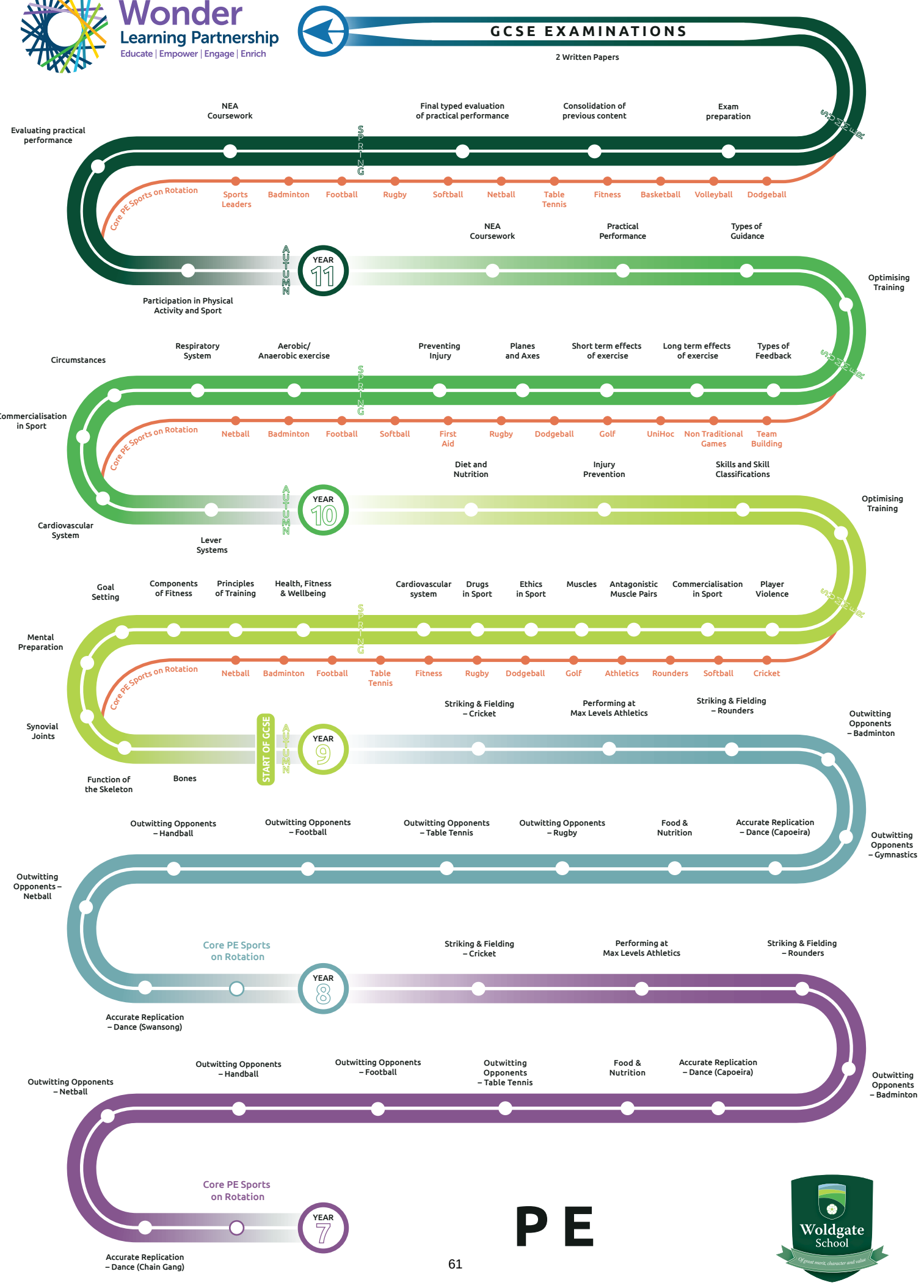

PE

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Performance Enhancing Drugs in Sport

A drug is a substance that can be taken in a variety of ways to produce expected/welcome **physiological** or **non physiological** results...but there may be some side effects.

Physiological

+
- Increased oxygen carrying capacity
- Increased muscle mass
- Increased pain threshold

−
- Addictive
- Increased risk of heart failure
- Increased risk of dehydration

Non Physiological

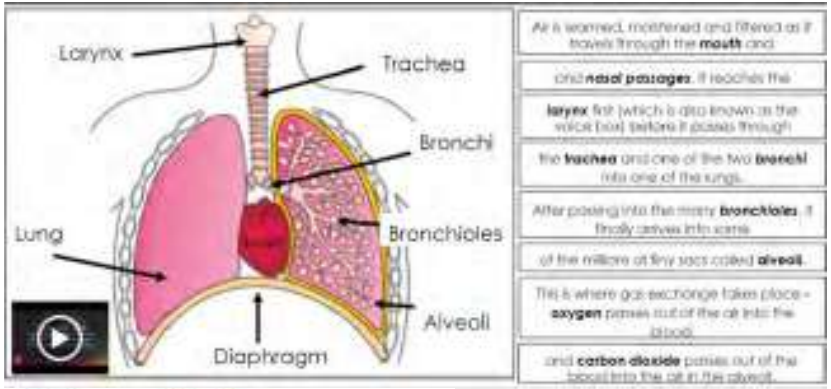
+
- Increased chances of success
- More money
- Increased fame

−
- Classed as cheating
- Can lead to a fine
- Damages reputation

Drugs	What do they do?	Who would use them?	Disadvantages
Stimulants	They act upon the central nervous system to delay fatigue and increase mental and physical alertness. They can also increase speed, power, endurance and concentration	Racing car driver, triathlete, tour de france cyclist	Dangerous side effects are that they can cause heart failure and become addictive
Anabolic Steroids	The drug reduces fatigue and reduces the time it takes to recover from exercise. They also help athletes to build muscle which increases strength and power.	Weightlifter, boxer, shot putter, discus thrower	Dangerous side effects include kidney failure and increased aggression
Beta Blockers	Beta blockers are drugs that are used to control the heart rate and have a calming and relaxing effect	Archer, golfer, darts player	A dangerous side effect is that beta blockers reduce heart rate to dangerously low levels

AO1	**Knowledge**
AO2	**Application**
AO3	**Evaluation/Analysis**

The Structure and Function of the Respiratory System

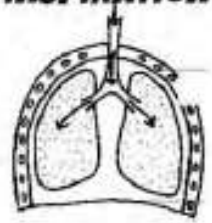
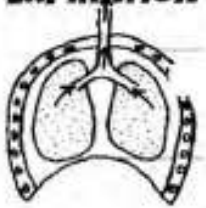


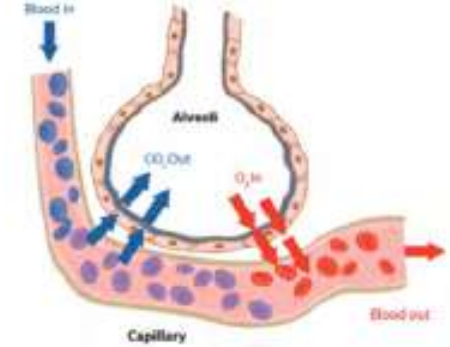
Air is warmed, moistened and filtered as it travels through the **mouth** and and **nasal passages**. It reaches the **larynx** first (which is also known as the voice box) before it passes through the **trachea** and one of the two **bronchi** into one of the lungs.

After passing into the many **bronchioles**, it finally arrives into sacs of the millions of tiny sacs called **alveoli**.

This is where gas exchange takes place - **oxygen** passes out of the air into the blood and **carbon dioxide** passes out of the blood into the air in the alveoli.

The Mechanics of Breathing

Inspiration	Expiration
	
• Intercostal muscles contract • Diaphragm contracts • Rib cage moves up and out	• Intercostal muscles relax • Diaphragm relaxes • Rib cage moves down and in



So What Does This Mean?

AIR ← AEROBIC RESPIRATION

FUEL + OXYGEN makes ENERGY

Glucose + Oxygen → water + CO2 + Energy

GLUCOSE

AEROBIC EXERCISE is any sport that requires oxygen to be completed (over 45 seconds long)

ANAEROBIC RESPIRATION

Glucose → Energy + Lactic Acid

ANAEROBIC EXERCISE is any sport that does not need to be completed in the presence of oxygen (less than 45 seconds)

AO1	Knowledge
AO2	Application

Components of Fitness & Fitness Tests

Component of Fitness	Definition	Sporting Examples	Fitness Tests
CV	The ability to work the whole body for a prolonged time without tiring	Marathon runners, Triathlon, Tour De France cyclists	Multi-stage fitness test (Bleep test) or 12 Minute Cooper run
Flexibility	The range of movement at a joint	Stretching to form a shape eg a Pike in Gymnastics	Sit and Reach test
Muscular Strength	Amount of force a muscle can generate when it contracts to overcome resistance	Weight Lifter	1 rep Max or Hand Grip Dynamometer
Muscular Endurance	The ability to repeat a movement with the same muscle without tiring	Swimming, rowing	Press ups in 1 min, Sit ups in 1 min
Power	The ability to perform strength exercises quickly	Throwing a Javelin	Vertical jump or Standing Long Jump
Balance	The ability to keep your centre of mass over your base of support	Holding a shape in Gymnastics or Dance	Standing Stork Test
Reaction Time	The time taken to respond to a stimulus	The start of a sprint race	Ruler drop test
Coordination	Ability to move two or more body parts together	Jumping and hitting a Smash shot in Badminton	Alternate wall throw test
Speed	The rate at which your body, or part of your body is able to perform a movement	100m	30m Sprint
Agility	The ability to change direction quickly and in control	Side step in Football or Rugby	Illinois Agility Run

AO1	**Knowledge**
AO2	**Application**

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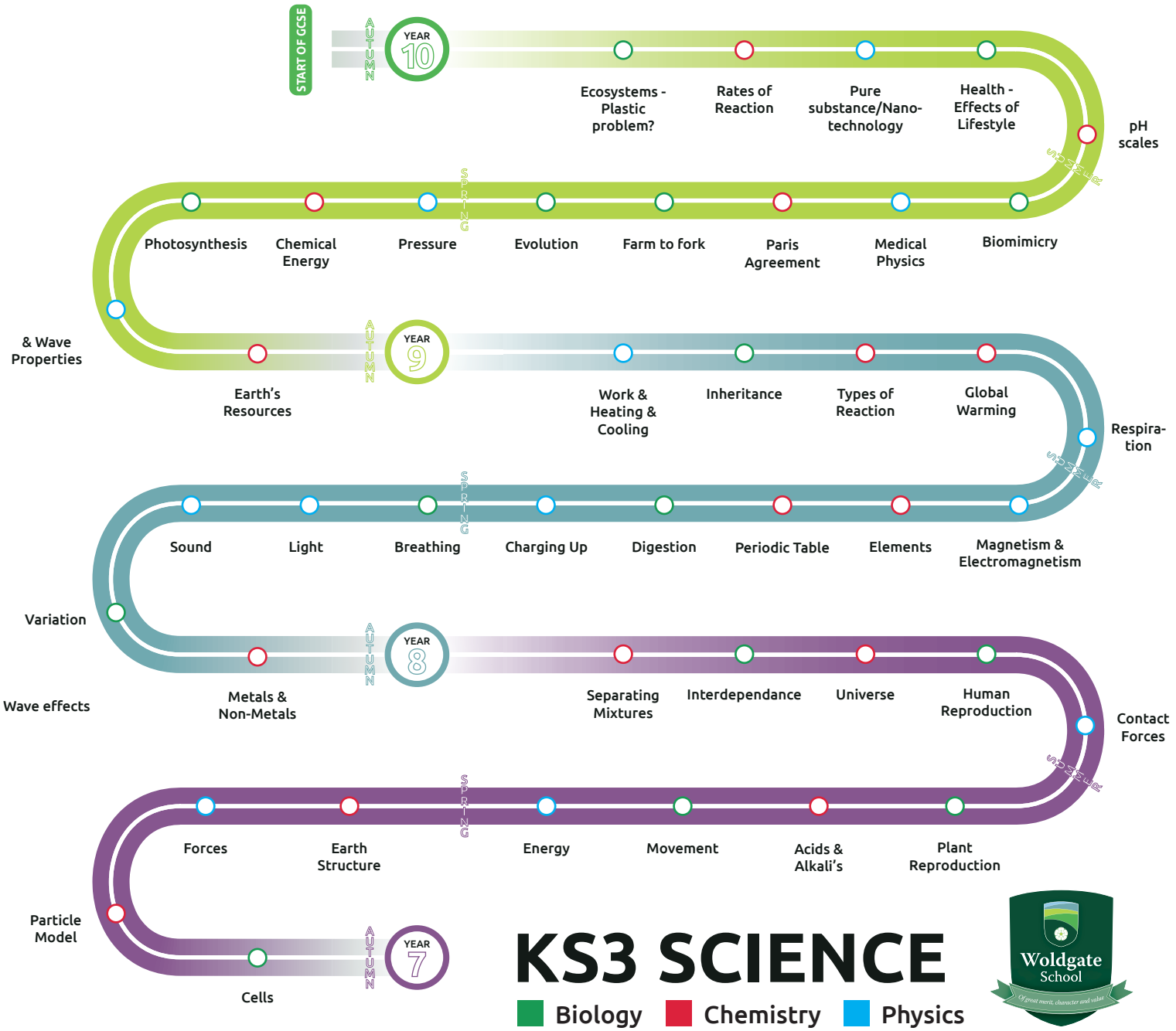

KS3 SCIENCE

Biology Chemistry Physics

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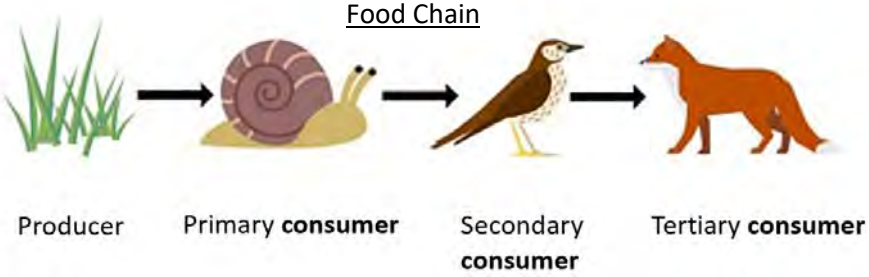
Community	A group of two or more populations of **different** species living in **the same** area.
Population	The total number of all of a particular species living in a specific area.
Ecosystem	An **ecosystem** is the interaction of a community of living organisms (biotic) with the non-living (abiotic) parts of their environment.
Biodiversity	The variety of different species of organisms on Earth or within an ecosystem.
Biotic factor	The **living** factors in an ecosystem.
Abiotic factor	The **non-living** factors in an ecosystem.
Competition	The contest between organisms, of both the same **and** different species, for the resources necessary to survive.
Interdependence	Within a community each species depends on other species for • food, • shelter, • pollination, • seed dispersal. If one species is removed, it can affect the whole community.
Adaptation	Features which enable organisms to survive in the environment in which they normally live.
Extremophile	Organisms that live in environments that are very extreme, such as at **high temperature**, **pressure**, or **salt concentration**. Example – bacteria living in deep sea vents

Adaptations can be…		Example
Structural	Physical features about the organism	A desert fox has big ears to increase surface area to volume ratio to keep it cool.
Behavioural	Things organisms do	Swallows migrate from the UK to Africa in the winter as it is less cold.
Functional	Things which happen inside the organism	Hedgehogs hibernate in winter by slowing down their metabolism, so they won't need food.

Food Chain



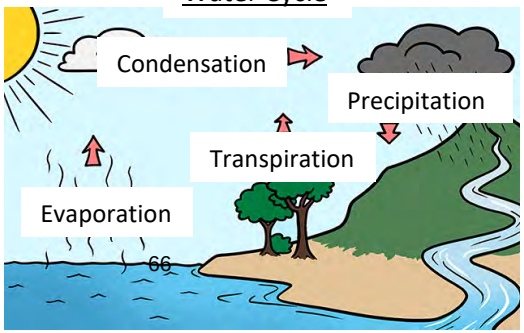
Year 9 Ecology: Human Impact on Biodiversity

Increased **standard of living** and rapid population growth of humans results in more **pollution** which kills plants and animals.	More resources are used and more waste is produced which can **pollute**: • **land** (landfill/toxic chemicals) • **water** (sewage/toxic chemicals/fertiliser) • **air** (smoke/acidic gases)
Humans reduce the amount of land available for other animals and plants.	• **building** • **quarrying** • **farming** • **dumping waste**.
Destroying peat bogs to produce garden compost or fuel	Destroys the habitat of the plants and animals that live there. The decay or burning of the peat releases carbon dioxide into the atmosphere
Large scale deforestation in tropical areas has destroyed habitats and released carbon dioxide	• provide land for **cattle** and **rice fields** • grow crops for **biofuel**
Levels of **carbon dioxid**e and **methane** in the atmosphere are increasing.	Leads to **global warming** which is destroying habitats due to rising sea levels.

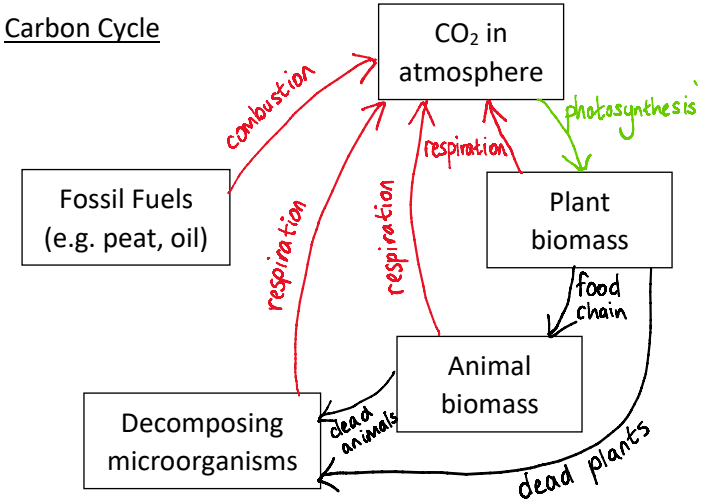
Yr9 Ecology
Knowledge Organiser

• breeding programmes for endangered species
• protection and regeneration of rare habitats
• reintroduction of field margins and hedgerows in agricultural areas where farmers grow only one type of crop
• reduction of deforestation and carbon dioxide emissions by some governments
• recycling resources rather than dumping waste in landfill.

Water Cycle



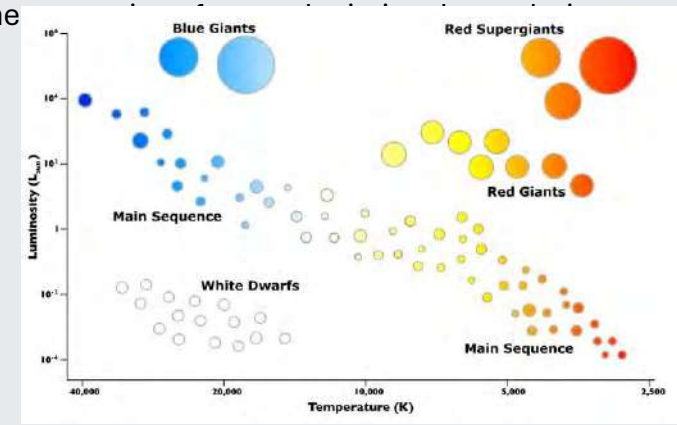
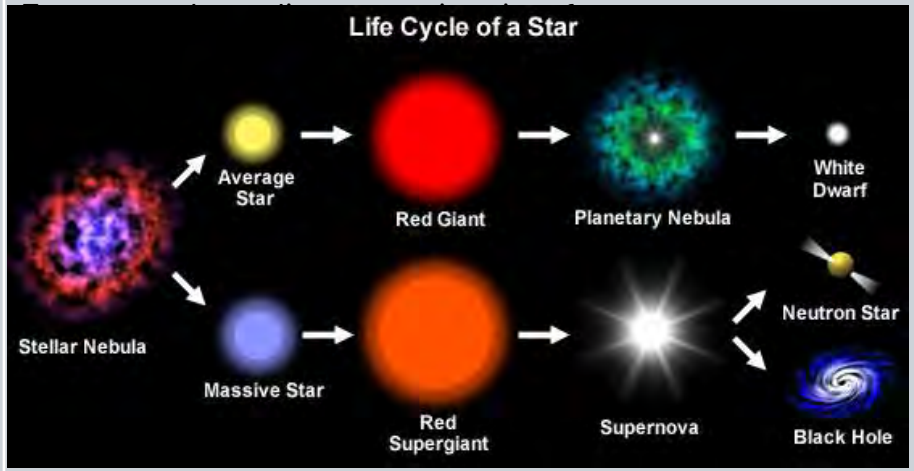
Carbon Cycle



Key Points to Learn

1. Planets of the solar system	Mercury Venus Earth Mars — Terrestrial planets - Rocky ASTEROID BELT - including dwarf planets and asteroids Jupiter Saturn Uranus Neptune — Gas Giants Pluto (dwarf planet)
2. Comets	have highly elliptical orbits, passing far out of our solar system
3. Moons	Most planets, including dwarf planets have moons.
4. Dwarf Planet	Asteroid belt contains them, and Pluto is one. Pluto would fit inside Australia
5. Orbit	the curved path of a celestial object or spacecraft round a star, planet, or moon, especially a periodic elliptical revolution.
6. Origin of our solar system	the origin of the solar system from the collapse of a cloud of gas and dust, including elements ejected in supernovae
7. Astronomical Units (AU)	1 A.U. is the mean distance from the Sun to the Earth
8. Light Years (l-y)	1 light year is the distance that light will travel in 1 year about 10 trillion kilometres or 6 trillion miles 1 light year = 63240 astronomical units

Key Points to Learn

9. Star Stability	Depends upon a balance between gravitational force and a combination of gas and radiation pressure and that stars generate their energy by the fusion of increasingly heavier elements In main sequence the forces acting on a star are balanced heavy elements which are created in fusion in large stars are ejected during supernovae.
10. Hertzsprung -Russell (H-R) diagram	displaying the ath of a star 
11. Life Cycle of a star	

Stars & Planets

Required Practical – Effect of concentration on rate

1—Increasing concentration will mean more particles available to react

2 — This will mean more collisions

3—This will mean more successful collisions

4– Therefore a faster rate of reaction

Two ways:

Investigate the concentration of HCl with marble chips

$CaCO_3(s) + 2HCl(aq) \rightarrow CaCl_2(aq) + CO_2(g) + H_2O(l)$

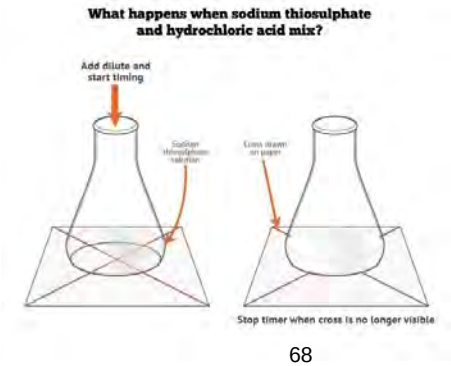
You can find the rate of a reaction by plotting the volume of carbon dioxide gas given off as the reaction progresses over time. You can measure the volume of gas at regular time intervals. Alternatively, you might choose to time how long it takes to collect a fixed volume of gas.

The reaction between sodium thiosulphate and dilute hydrochloric acid:

$Na_2S_2O_3(aq) + 2HCl(aq) \rightarrow 2NaCl(aq) + SO_2(aq) + S(s) + H_2O(l)$

Your timing method should use the increasing cloudiness (turbidity) of the reaction mixture as the reac-

Effect of conditions on rate		
Temperature	Increase	Decrease
Rate	Increase—more kinetic energy, more chance of collisions	Decrease—less kinetic energy, less chance of collisions
Pressure/ concentration	Increase	Decrease
Rate	Increase, more particles to collide	Decrease, less particles to collide
Surface area	Increase	Decrease
Rate	More particles available to react	Less particles available to react
Catalyst	Present	Not Present
Rate	Faster, provides an alternative route with a lower activation energy	Slower



Keyword	Definition
1. Reversible	A reaction that can turn reactants into products and products into reactants.
2. Dynamic Equilibrium	A reaction in which the forwards and backwards reactions occur at the same rate and the concentrations of reactants and products are constant.
3. Forwards reaction	The reaction that is forming products from reactants.
4. Backwards reaction	The reaction that is forming reactants from products.
5. Exothermic	A reaction that releases heat energy to the surroundings.
6. Endothermic	A reaction that takes in heat energy to the surroundings.
7. Rate of reaction	Change in concentration of reactants or products over unit time
8. Catalyst	A substance that is not used up that provides an alternate pathway for a reaction with a lower activation energy, speeding up the rate of reaction
9. Collision theory	Reactions only occur when particles collide with **enough energy.**
10. Surface area	Area of surface that has particles available to react
11. Closed system	No conditions can be changed externally.

*Le Chatelier's principle – 1888

"If a change occurs to a system in dynamic equilibrium, the position of equilibrium shifts in a direction to oppose the change."

Effect of conditions on equilibria		
Temperature	Increase	Decrease
Change in equilibrium	Moves in the endothermic direction	Moves in the exothermic direction
Pressure	Increase	Decrease
Change in equilibrium	Moves to the side with least moles	Moves to side with more moles
Concentration	Increase	Decrease
Change in equilibrium	Removes the substance that you've added, moving the equilibrium in the opposite way	Makes more of the substance you've removed
Catalyst	Present	Not Present
Change in equilibrium	No effect—however, will make it so the rate to reach equilibrium is faster	

Worked example

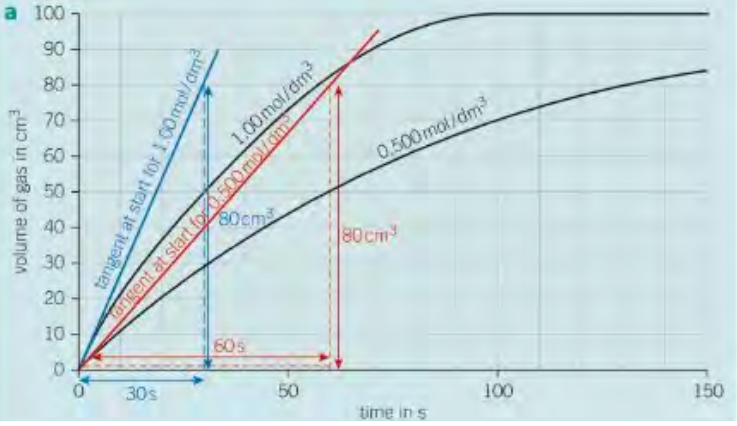
An investigation was carried out to find how the concentration of dilute hydrochloric acid affected the rate of its reaction with calcium metal. The volume of hydrogen gas given off was monitored over 150 seconds using a gas syringe. One test was carried out using 0.167 g of calcium with an excess of 1.00 mol/dm^3 dilute hydrochloric acid, and this was repeated using the same volume of 0.500 mol/dm^3 acid, also in excess. The results were plotted on a graph – see the two curves in the graph below.

a Use the results on the graph to find the initial rates of reaction, i.e. at the start when time = 0 seconds.

b Draw a conclusion from part **a**.

Solution

a



Draw tangents from the origin to work out the gradient (change in the y axis / change in the x axis)

Then do concentration/ time = rate

The units for rate will depend on how you measure concentration: if it's measured in moldm^{-3} , then you will have divided this by seconds, so it would be moldm^3/s

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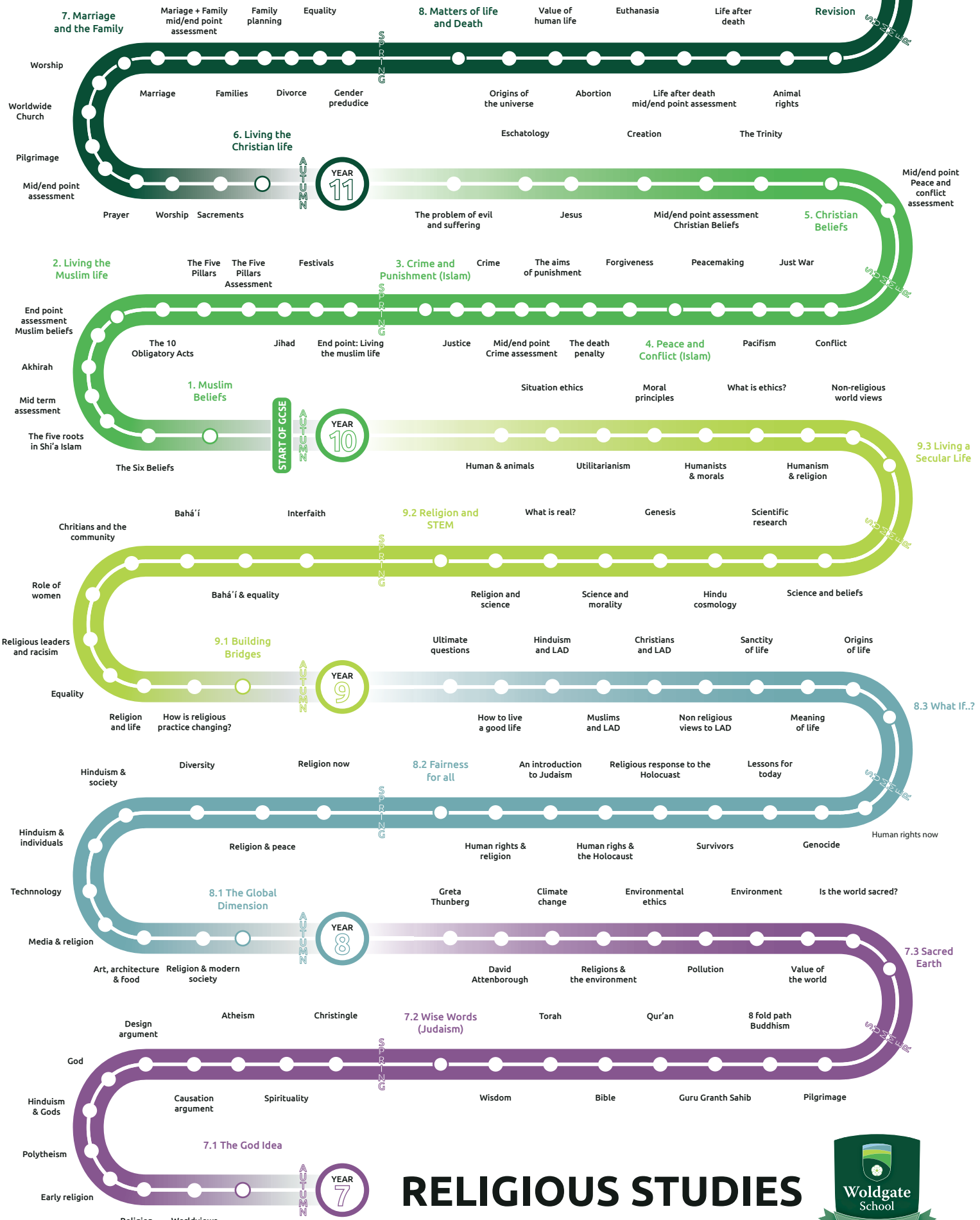
GCSE Edexcel B – Beliefs in Action

GCSE EXAMINATIONS

RELIGIOUS STUDIES



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Year 9 : Unit 9:2 Religion and STEM

What is the contribution of religion to understanding the world?

KNOWLEDGE ORGANISER

Key Terms	
Science	Knowledge and facts based on observation of the natural and physical nature of the world.
Literalist	A Christian who believes that the Bible is the direct word of God and should be taken literally.
Liberal	a type of Christian who reads the Bible as stories, myths and metaphors.
Evidence	The available body of facts or information which might lead you to believe that something is true.
Proof	Evidence that shows something is true or existent
Spirituality	Being dedicated to God, religion, or spiritual things or values, especially as contrasted with material or temporal ones.
Morality	Morality means a sense of right and wrong, or good and bad behaviour.
Cosmology	Understandings of the universe and how it began.
Design Argument	the world around us is so intricate and well-designed that there must be an intelligent creator behind it.
Genesis	The first book of the Bible, containing the creation story.
STEM	Science, technology, engineering and mathematics.
Prakriti	Physical material; belief that all matter is made up of three qualities (tri-guna) – darkness, activity and goodness.
Purusa	Spirit - the essence of a living being which cannot be seen.
Yugas	The four ages that creation must pass through.

Contribution of Religious Scientists to our Understanding of the World	
Avicenna	Made significant contributions to medicine. His works were translated into Latin and brought Greek learning back into Western Europe.
C. V. Raman	Advanced the understanding of light scattering in materials. His discovery laid the groundwork for Raman spectroscopy, widely used in molecular analysis
Satyendra Nath Bose	Laid the foundation for quantum statistics and the Bose-Einstein condensate, contributing to the understanding of matter's behaviour at ultra-low temperatures.
George Lemaitre	A Roman Catholic Priest who first proposed the Big Bang Theory.
Albert Einstein	Avogadro's Number, Quantum Theory of Light, General Theory of Relativity, Special Theory of Relativity, The Photoelectric Effect, Wave-Particle Duality, Brownian movement, the relationship between mass and energy, Bose-Einstein Condensate,

"Science without religion is lame, religion without science is blind." **Albert Einstein**

Key Ideas

Ideas about Creation

Christian Ideas

- Christians believe the universe was designed and made by God
- The creation story in **Genesis 1** says that God made the world in six days
- -**Literalist Christians** believe this is true and that God created the world in 6 days exactly as it says.
- **Liberal Christians** say the creation story in the Bible is just a story and may agree with scientific ideas about creation
- *"In the beginning God created the heavens and the earth" – Genesis 1:1*

Scientific Ideas

- The **Big Bang Theory** argues that the universe started as a dense collection of mass which massively expanded creating stars, galaxies and planets
- The **Theory of Evolution** comes from Charles Darwin who observed that animals change over time and argued that humans were not designed by God but evolved from apes
- These theories do not fit with a **literalist Christian's** view but could fit with a **liberal** view

Religion VS Science

Religion

- Asks WHY questions
- Tries to explain the purpose of things
- Explains value and importance
- Based on faith, holy scriptures, personal experience and tradition
- Viewed as truth always (eternal truth)
- Can be taken literally but often interpreted as more story-like

Science

- Asks HOW questions
- Tries to explain the nature of things
- Explains processes and methods
- Based on knowledge and hypotheses
- Open to review as ideas change and more evidence becomes available
- Taken as explanations of how things happen

Design Argument

The Design Argument argues that God must exist because the world around us is so intricate and well-designed that there must be an intelligent creator behind it. William Paley puts this forward in his Watchmaker's Argument that says if you found a watch in the grass you would not assume its intricate mechanism had come about by accident, you would assume someone had created it. The same applies for the world around us.

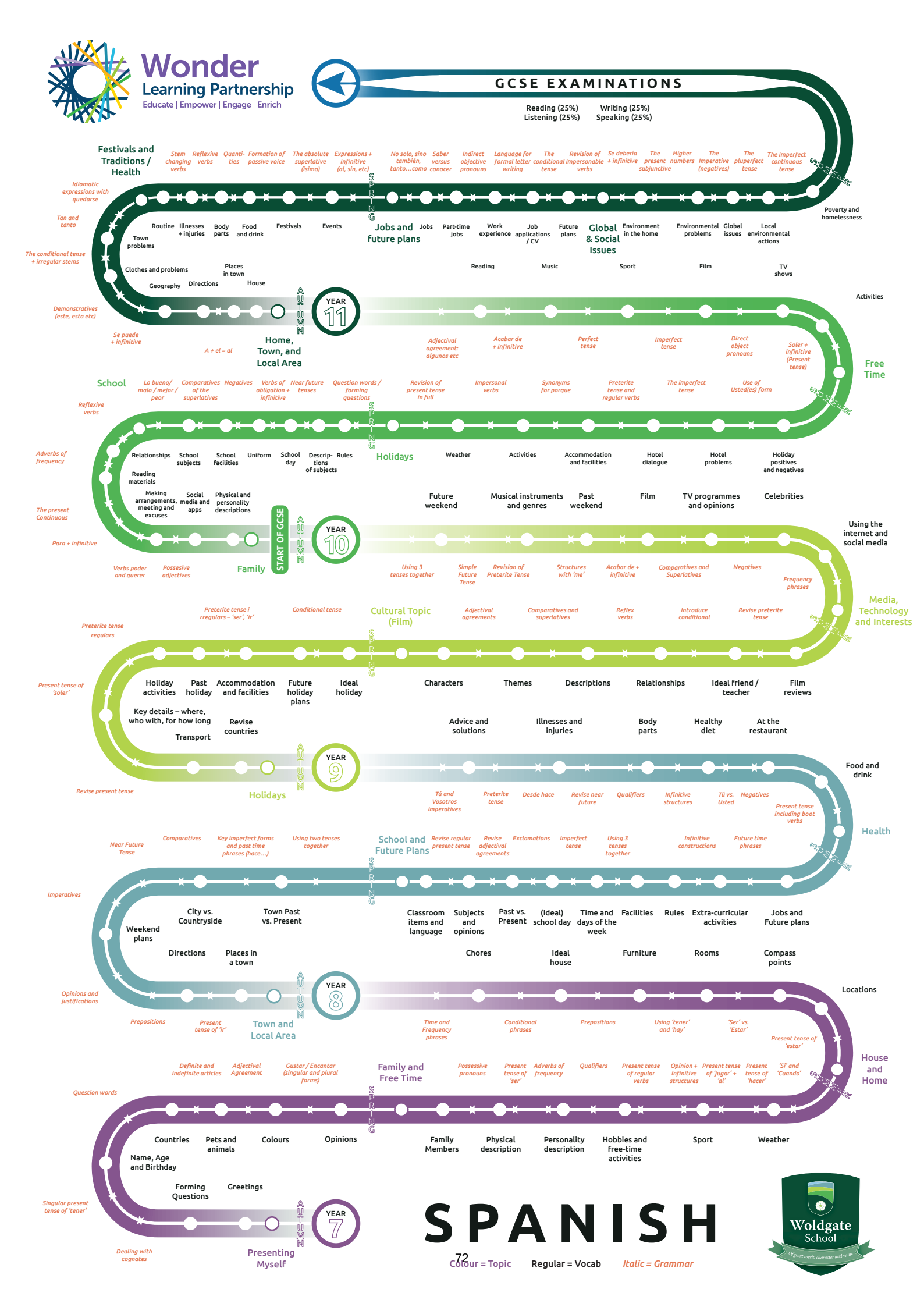
Atheists argue that nature and science are responsible for the world around us and that much of the so-called design is the result of chance and natural selection

Hindu Cosmology

Hindus believe that there are different worlds, the spiritual and material worlds and time is cyclical, it goes around and repeats. The world is re-created over and over again. The universe is one of many bubbles floating in space. These bubbles came from the breath of Vishnu.

There is not one single creation story but many different interrelated ones. There are two realities – Spirit (purusa) and matter (prakriti). The atman is distinct from the material and temporary mind and body.

Hindu understanding of time – the cycle of the four ages ,Hindus believe that there are four very long ages (epochs), called yugas and they continually rotate.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GCSE EXAMINATIONS
Reading (25%)
Listening (25%)
Writing (25%)
Speaking (25%)
Festivals and Traditions / Health
Stem changing verbs
Reflexive verbs
Quanti-ties
Formation of passive voice
The absolute superlative (isimo)
Expressions + infinitive (al, sin, etc)
No solo, sino también, tanto…como
Saber versus conocer
Indirect objective pronouns
Language for formal letter writing
The conditional tense
Revision of impersonable verbs
Se debería + infinitive
The present subjunctive
Higher numbers
The Imperative (negatives)
The pluperfect tense
The imperfect continuous tense
SUMMER
Idiomatic expressions with quedarse
Poverty and homelessness
Tan and tanto
Routine
Illnesses + injuries
Body parts
Food and drink
Festivals
Events
Jobs and future plans
Jobs
Part-time jobs
Work experience
Job applications / CV
Future plans
Global & Social Issues
Environment in the home
Environmental problems
Global issues
Local environmental actions
Town problems
The conditional tense + irregular stems
Clothes and problems
Places in town
Reading
Music
Sport
Film
TV shows
Geography
Directions
House
SPRING
AUTUMN
YEAR 11
Activities
Demonstratives (este, esta etc)
Se puede + infinitive
A + el = al
Home, Town, and Local Area
Adjectival agreement: algunos etc
Acabar de + infinitive
Perfect tense
Imperfect tense
Direct object pronouns
Soler + infinitive (Present tense)
Free Time
School
Lo bueno/ malo / mejor / peor
Comparatives of the superlatives
Negatives
Verbs of obligation + infinitive
Near future tenses
Question words / forming questions
Revision of present tense in full
Impersonal verbs
Synonyms for porque
Preterite tense and regular verbs
The imperfect tense
Use of Usted(es) form
Reflexive verbs
Adverbs of frequency
Relationships
School subjects
School facilities
Uniform
School day
Descrip-tions of subjects
Rules
Holidays
Weather
Activities
Accommodation and facilities
Hotel dialogue
Hotel problems
Holiday positives and negatives
Reading materials
Making arrangements, meeting and excuses
Social media and apps
Physical and personality descriptions
Future weekend
Musical instruments and genres
Past weekend
Film
TV programmes and opinions
Celebrities
The present Continuous
Para + infinitive
START OF GCSE
YEAR 10
Using the internet and social media
Verbs poder and querer
Possessive adjectives
Family
Using 3 tenses together
Simple Future Tense
Revision of Preterite Tense
Structures with 'me'
Acabar de + infinitive
Comparatives and Superlatives
Negatives
Frequency phrases
Media, Technology and Interests
Preterite tense i rregulars – 'ser', 'ir'
Conditional tense
Cultural Topic (Film)
Adjectival agreements
Comparatives and superlatives
Reflex verbs
Introduce conditional
Revise preterite tense
Preterite tense regulars
Present tense of 'soler'
Holiday activities
Past holiday
Accommodation and facilities
Future holiday plans
Ideal holiday
Characters
Themes
Descriptions
Relationships
Ideal friend / teacher
Film reviews
Key details – where, who with, for how long
Transport
Revise countries
Advice and solutions
Illnesses and injuries
Body parts
Healthy diet
At the restaurant
YEAR 9
Food and drink
Revise present tense
Holidays
Tú and Vosotros imperatives
Preterite tense
Desde hace
Revise near future
Qualifiers
Infinitive structures
Tú vs. Usted
Negatives
Present tense including boot verbs
Health
Near Future Tense
Comparatives
Key imperfect forms and past time phrases (hace…)
Using two tenses together
School and Future Plans
Revise regular present tense
Revise adjectival agreements
Exclamations
Imperfect tense
Using 3 tenses together
Infinitive constructions
Future time phrases
Imperatives
Weekend plans
City vs. Countryside
Town Past vs. Present
Classroom items and language
Subjects and opinions
Past vs. Present
(Ideal) school day
Time and days of the week
Facilities
Rules
Extra-curricular activities
Jobs and Future plans
Directions
Places in a town
Chores
Ideal house
Furniture
Rooms
Compass points
YEAR 8
Locations
Opinions and justifications
Prepositions
Present tense of 'ir'
Town and Local Area
Time and Frequency phrases
Conditional phrases
Prepositions
Using 'tener' and 'hay'
'Ser' vs. 'Estar'
Present tense of 'estar'
House and Home
Definite and indefinite articles
Adjectival Agreement
Gustar / Encantar (singular and plural forms)
Family and Free Time
Possessive pronouns
Present tense of 'ser'
Adverbs of frequency
Qualifiers
Present tense of regular verbs
Opinion + Infinitive structures
Present tense of 'jugar' + 'al'
Present tense of 'hacer'
'Si' and 'Cuando'
Question words
Countries
Pets and animals
Colours
Opinions
Family Members
Physical description
Personality description
Hobbies and free-time activities
Sport
Weather
Name, Age and Birthday
Forming Questions
Greetings
Singular present tense of 'tener'
YEAR 7
Dealing with cognates
Presenting Myself
SPANISH
Colour = Topic
Regular = Vocab
Italic = Grammar
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SPEAKING QUESNTIONS
a) ¿Qué piensas de 'Zipi y Zape y el club de la canica'? ¿Por qué? *What do you think of the film 'Zipi and Zape and the Marble gang'? Why?*
b) Describe la relación entre dos personajes en la película. *Describe the relationship between two characters in the film.*
c) En tu opinión, ¿cuáles son los temas que hay en la película ? *In your opinion, what themes are there in the film?*
d) ¿Recomendarías la película a un amigo? ¿Por qué (no)? *Would you recommend the film to a friend? Why (not)?*
e) Describe tu profesor(a) ideal. *Describe your ideal teacher.*
f) Describe la última vez que fuiste al cine. ¿Qué viste? *Describe the last time you went to the cinema. What did you see?*

Vocabulario

Un personaje – *A character*
Una canica – *A marble*
Un volante – *A steering wheel*
Un martillo – *A hammer*
Un parche – *An eye patch*
Un patito/ pato de goma – *A rubber duck*
Un colegio de verano – *A summer school*
Un gemelo – *A twin*
Un tirachinas – *A catapult*

Expressing opinions on the film, school and teachers

En mi opinión *(In my opinion)* Pienso que *(I think that)* Creo que *(I belive that)*	la película *(the film)* el colegio *(the school)* los profesores *(the teachers)*	es *(he / she / it is)* son *(they are)*	interesante(s) *(interesting)* guay *(cool)* gracioso/a(s) *(funny)* divertido/a(s) *(fun)* entretenido/a(s) *(entertaining)* simpático/a(s) *(kind)*
Me gusta(n) *(I like)* No me gusta(n) *(I don't like)* Me encanta(n) *(I love)* Odio *(I hate)*		porque es *(because it is)* porque son *(because they are)*	aburrido/a(s) *(boring)* tonto/a(s) *(silly)* molesto/a(s) *(annoying)* triste(s) *(sad)* infantil(es) *(childish)* severo /a(s) *(strict)*

Describing different characters

Pienso que *(I think that)* Creo que *(I believe that)* Desde mi punto de vista *(From my point of view)* Diría que *(I would say that)* En mi opinión *(In my opinion)*	Zipi Zape Micro Filo Matilde Heidi Falconetti Piojo	es	un poco bastante muy realmente demasiado	agradable *(nice)* comprensivo/a *(understanding)* guapo/a *(good-looking)* simpático/a *(kind)* generoso/a *(generous)* gracioso/a *(funny)* paciente *(patient)* honesto/a *(honest)* furtivo/a *(sneaky)* injusto/a *(unfair)* impaciente *(impatient)* escalofriante *(frightening)* tonto/a *(silly)* severo/a *(strict)*

Comparing different characters

Zipi Zape Micro Filo Matilde Heidi Falconetti Piojo	es	más menos	agradable comprensivo/a guapo/a simpático/a generoso/a gracioso/a paciente	que	Zipi Zape Micro Filo Matilde Heidi Falconetti Piojo
		tan	honesto/a furtivo/a injusto/a impaciente escalofriante tonto/a severo/a	como	

Describing relationships between characters

Zipi Zape Micro Filo Matilde Piojo Falconetti Heidi	se lleva bien con *(gets on well with)* no se lleva bien con *(does not get on well with)* se enfada con *(argues with)* se enamora de *(falls in love with)* se pelea con *(fights with)* se divierte con *(has fun with)* se queja de *(complains about)* se enemista con *(makes enemies with)*	Zipi Zape Micro Filo Matilde Piojo Falconetti Heidi

Online influences

Personal Development theme link:

Living in the Outside World

British Values link: Rule of Law/ Individual Liberty

What ways do people try to influence you online?

Method	Definition
Propaganda	Using a variety of means to influence people
Bandwagon	Encourage people that everyone is doing something
Passing the blame	Making out that other people are to blame for issues
Slang language	Trying to write like their target audience writes
Bold statement	Big statements that have an unrealistic impact
Association	Linking the behaviour, they want from you to a celebrity or public figure
Lesser of two evils	

Signs of a scam

Authority – The message might trick someone into doing what the criminal wants by claiming to be from someone official, for example a bank, doctor, a solicitor, or a government department.

Urgency – The message may give a limited time to respond (such as 'within 24 hours' or 'immediately') or there may be a threat of fines or other negative consequences.

Emotion – The message might make the recipient panic, fearful, hopeful or curious.

Scarcity – The message might offer something that is in short supply, like concert tickets, money or a cure for medical conditions. Fear of missing out on a good deal or opportunity can make recipients respond quickly.

Current events – Criminals often exploit current news stories, big events or specific times of year (like tax reporting) to make their scam seem more relevant.

How can you figure out if something is real/ trustworthy?

Think: REAL!

Real – think to yourself – does this seem realistic?

Evidence – Consider who wrote it? Realistic web address? Who are the publishers?

Add it all up – do some research around the topic? Does what is being said fit in with your research?

Look around – are there any other websites or social media platforms carrying the same article or message?

Where can you turn to for help?

Speak to a trusted adult in school.

Speak to a family member or a friend.

On social media – use the report button/ function.

Visit Childline – www.childline.org.uk

`Visit the NSPCC website – www.nspcc.org.uk

Visit Childnet – www.childnet.com

Describing themes in the film

Pienso que *(I think that)* Creo que *(I believe that)* Desde mi punto de vista *(From my point of view)* Diría que *(I would say that)* En mi opinión *(In my opinion)*	hay muchos temas, como *(there are many themes, such as)* el tema más importante es *(the most important theme is)*	la amistad *(friendship)* el amor *(love)* la educación *(education)* la resistencia *(resistance)* la autoridad *(authority)* la diversión *(fun)*

Describing an ideal friend / teacher

Mi amigo/a ideal Mi profesor(a) ideal	sería *(would be)*	simpático/a gracioso/a honesto/a paciente inteligente comprensivo/a
	tendría *(would have)*	mucha paciencia *(a lot of patience)* mucha confianza *(a lot of confidence)* un buen sentido del humor *(a good sense of humour)*
	le gustaría *(would like)*	jugar al baloncesto ir al cine ver la tele

Describing a past trip to the cinema

Ayer *(Yesterday)* Anoche *(Last night)* La semana pasada *(Last week)* El fin de semana pasado *(Last weekend)* El lunes *(On Monday)*	fui al cine con	mi familia *(my family)* mis amigos *(my friends)* mi hermano /a *(my brother / sister)* mis primos *(my cousins)* solo/a *(alone)*	y vi *(and I watched)* y vimos *(and we watched)*	una película de acción una película de horror una película ciencia ficción una película cómica

Recommending the film

Recomendaría la película porque era …
(I would recommend the film because it was …)

No, no recomendaría la película porque era..
(No, I would not recommend the film because it was …)

realmente (*really)*
bastante (*quite)*
un poco (*a bit)*
muy (*very)*
demasiado (*too)*

interesante (*interesting)*
aburrida / monótona (*boring)*
emotiva (*moving)*
triste (*sad)*
graciosa (*funny)*
divertida *(fun)*
entretenida (*entertaining)*
emocionante *(exciting)*
tonta *(silly)*

Other useful vocabulary to expand speaking and writing

La película se llama…	*(The film is called…)*
Se trata de…	*(It's about…)*
Los personajes principales son…	*(The main characters are…)*
Es…	*(It is…)*
No es…	*(It isn't…)*
Son…	*(They are…)*
Hay…	*(There is / there are…)*

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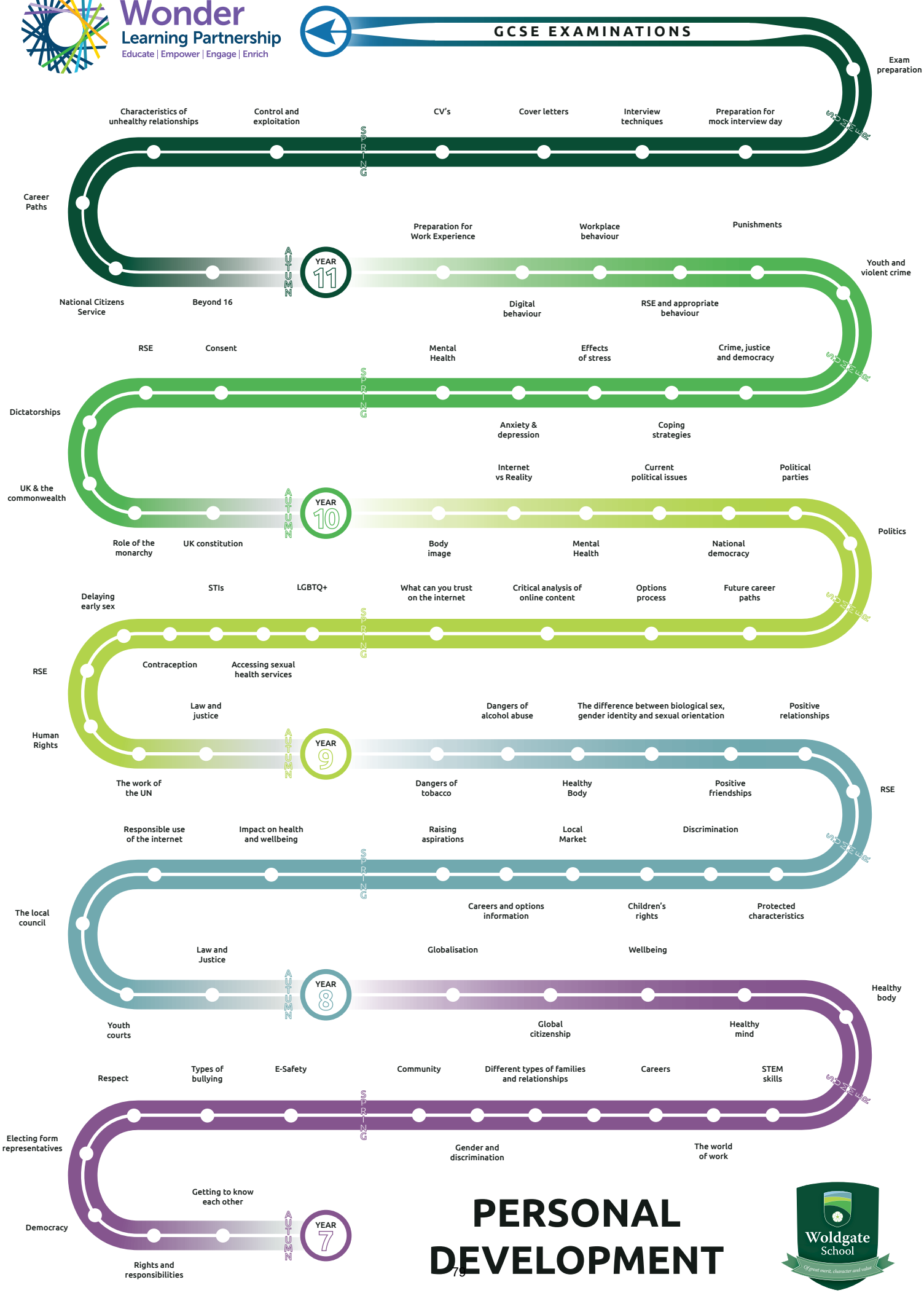

PERSONAL DEVELOPMENT

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Careers and aspirations

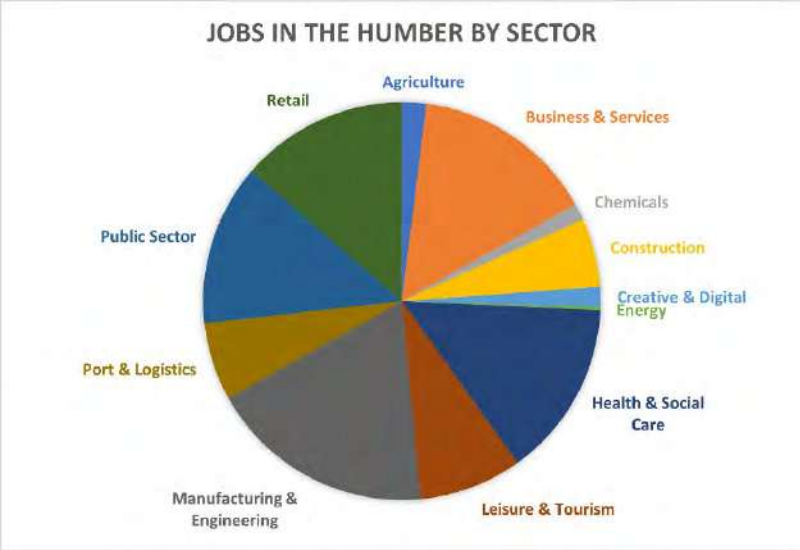
Key terms relating to careers

Salary	An amount of money paid to a worker / employee
Full time	Usually, 35 hours a week
Part time	No fixed amount, but less than 35 hours
Annual Leave	Time off from work while being paid (holiday pay)
Gross income	Amount you get paid before deductions
Net income	Amount you get after deductions
Income Tax	Money back to the government from your wages
Apprenticeship	Take 1-5 years to complete. Mostly work placed with some study
T Level	2 year course, equivalent to 3 A Levels, involving industry placements

What are the Skills for Life?

1. Communication
2. Teamwork
3. Creativity
4. Resilience
5. Time management and organisation
6. Problem solving

Local Market Information for the Humber



Emerging jobs in the UK

The top-15 emerging jobs in the UK.

#1 Artificial Intelligence Specialist	#6 User Researcher	#11 Platform Engineer
#2 Data Protection Officer	#7 Data Scientist	#12 Full Stack Engineer
#3 Robotics Engineer	#8 Sales Development Representative	#13 Enterprise Account Executive
#4 Site Reliability Engineer	#9 Cloud Engineer	#14 DevOps Engineer
#5 Customer Success Specialist	#10 Cyber Security Specialist	#15 Content Designer

Online influences

Personal Development theme link:

Living in the Outside World

British Values link: Rule of Law/ Individual Liberty

What ways do people try to influence you online?

Method	Definition
Propaganda	Using a variety of means to influence people
Bandwagon	Encourage people that everyone is doing something
Passing the blame	Making out that other people are to blame for issues
Slang language	Trying to write like their target audience writes
Bold statement	Big statements that have an unrealistic impact
Association	Linking the behaviour, they want from you to a celebrity or public figure
Lesser of two evils	

Signs of a scam

Authority – The message might trick someone into doing what the criminal wants by claiming to be from someone official, for example a bank, doctor, a solicitor, or a government department.

Urgency – The message may give a limited time to respond (such as 'within 24 hours' or 'immediately') or there may be a threat of fines or other negative consequences.

Emotion – The message might make the recipient panic, fearful, hopeful or curious.

Scarcity – The message might offer something that is in short supply, like concert tickets, money or a cure for medical conditions. Fear of missing out on a good deal or opportunity can make recipients respond quickly.

Current events – Criminals often exploit current news stories, big events or specific times of year (like tax reporting) to make their scam seem more relevant.

How can you figure out if something is real/ trustworthy?

Think: REAL!

Real – think to yourself – does this seem realistic?

Evidence – Consider who wrote it? Realistic web address? Who are the publishers?

Add it all up – do some research around the topic? Does what is being said fit in with your research?

Look around – are there any other websites or social media platforms carrying the same article or message?

Where can you turn to for help?

Speak to a trusted adult in school.

Speak to a family member or a friend.

On social media – use the report button/ function.

Visit Childline – www.childline.org.uk

`Visit the NSPCC website – www.nspcc.org.uk

Visit Childnet – www.childnet.com