The John of Gaunt School
A Community Academy

Name   TG

Year 10

Knowledge Organisers

Term 1 - 2023

Business Studies	Business continued

Business Studies

The role of business

1. What is the purpose of a business?
2. List 3 characteristics of an entrepreneur.
3. List the risks of starting a business.
4. List the rewards of owning your own business.
5. Someone who creates a new business idea and takes risks to turn their ideas into money is known as an _____

Business ownership - True or false?

1. Sole traders are owned and run by one person
2. Sole traders have limited liability
3. One advantage of a partnership is shared responsibility
4. One disadvantage of a partnership is that the original owner keeps all the profits
5. LTD stands for Public limited company
6. LTDs have limited liability
7. PLC stands for Public limited company 8. Anyone can buy shares in a PLC
9. What is a 'start-up'?

Business Aims and Objectives:

1. What is a business objective?
2. The objective of not going bust is known as S _____
3. The objective of making as much profit as possible is known as P_____ M_____ ____
4. How do business objectives change over time?
5. A business objective of getting bigger is known as G _____

Business Planning:

1. What is a business plan?
2. State 2 sections of a business plan
3. State 2 stakeholders that would be interested in a business plan
4. State one advantage of preparing a business plan
5. State one disadvantage of preparing a business plan

Business continued

Expanding a business

1. When one company buys another this is known as a T
2. When two companies agree to join together this is known as a M
3. When a business grows by opening new stores, this is called O

4. External growth means

Stakeholders

1. A person/group with a concern or interest in a business is known as a S _____
2. True or false: All employees are stakeholders
3. True or false: The government is a stakeholder in any business
4. True or false: different stakeholder groups have different amount of influence in each business
5. Give an example of where stakeholder groups may be in conflict

Child Care	Computer Science
Year 10 Child development term 1	**Computer Science Yr10**
1. How many food groups are included in the Eat Well Plate?	1. What is a Flowchart?
2. Name a food fond in the dairy and alternatives section of the eat well plate	2. What is the purpose of a flowchart?
3. Name a food found in the fruit and vegetable section of the eat well plate.	3. What is Decomposition?
4. What age is the Eat Well Plate aimed at?	4. Explain how you used Decomposition to get to school
5. Name 1 of the 8 tips for healthy eating?	5. What is a syntax error?
6. Why does a child need to eat Protein?	6. What is a logic error?
7. Name a source (where it is found) of protein	7. What does the flowchart represent in the diagrams section?
8. Why does a child need to eat carbohydrate?	8. Draw and label the different flowchart shapes.
9. Name a source (where it is found) of starchy carbohydrate.	9. Draw a flowchart for a program that allows a user to enter their username and password to log on to the computer system
10. Why does a child need to eat Calcium?	10. Write the pseudocode for a program that allows a user to enter their username and password to log on to the computer system.
11. What is stunted growth?	11. What is the difference between Division and Floor division?
12. What is obesity?	12. What symbol do we use to represent greater than or equal to?
13. Lack of which mineral can lead to anaemia?	13. What symbol do we use to represent not equal to?
14. What is rickets?	14. Write the pseudocode for a program that allows the user to input 2 numbers and calculate the total of them added together.
15. Name a nutrient needed to provide energy	
16. Lack of which nutrient leads to stunted growth?	
17. Too much of which nutrient(s) can lead to obesity?	
18. What type of fish should we try to eat once a week?	
19. What type of fat should we try to eat less of?	
20. Why do we need fat in a child's diet?	

Drama	English
1. What does a stage position determine? 2. Where is centre stage? 3. How can you tell stage left from stage right? 4. Why is 'Upstage' referred to as 'Upstage' and 'downstage' as 'downstage'? 5. Where can you find 'Backstage'? 6. What is In-The-Round staging? 7. What is Traverse staging? 8. What is Thrust stage? 9. What is End-on stage? 10. What is Promenade theatre? 11. What is the role of a director? 12. What is the role of a playright? 13. What is the role of a lighting or sound designer? 14. What is the role of a set or costume designer? 15. What is the role of a stage manager? 16. What is the role of a theatre manager? 17. What is the role of a technician? 18. What is the role of a performer? 19. What is the role of a understudy? 20. What is a 'genre'?	Knowledge Organiser questions – Power and Conflict poetry (War cluster) 1. 2 pairs of stressed syllables, followed by two unstressed syllables is called_____ _____. 2. The running-over of a sentence or phrase from one poetic line to the next, without terminal punctuation is called _____. 3. A pause in a line of poetry is called _____. 4. What is a semantic field? 5. a poem in which an imaginary character speaks to a silent listener, is called a _____ _____. 6. Blank verse is where there is no set rhyme or rhythm – true or false 7. What is pathetic fallacy? 8. Which poem is based on the Crimean war? 9. Which 2 poems are based on WW1? 10. Which poem is written from the perspective of a soldier at home on annual leave? 11. Which poem is written from a mother's perspective? 12. Which poem is based on WWII? 13. Which poem is written from the perspective of a person who has left their home country due to conflict? 14. Which poem is about a soldier suffering from PTSD? 15. Which poem is the quotation "into the jaws of death, into the mouth of hell" from? 16. Which poem is the quotation 'Our brains ache in the merciless iced east winds that knife us' from? 17. Which poem is the quotation "bullets smacking the belly out of the air" from? 18. Which poem is the quotation "spools of suffering set out in ordered rows" from? 19. What does the regular rhyme and stanza length in War photographer help to reflect? 20. What is a soliloquy?

Engineering	
Year 10 20 Questions – Engineering 1. What is a sustainable fuel source? 2. What does renewable mean? 3. Why is carbon dioxide an issue to the environment? 4. What is fission? 5. What is Biomass? 6. What fossil fuels are used to generate electricity? 7. Name 2 ways of storing electricity? 8. What is the National Grid? 9. What voltage do we use in the UK? 10. What does Global warming mean? 11. What is a risk assessment? 12. What does tolerance mean when looking at materials? 13. What is stock size? 14. What is a ferrous metal? 15. Name a ferrous metal and what its properties are? 16. What is an alloy? 17. Name an alloy and describe its properties? 18. What is engineers blue? 19. When would you use a Vernier calliper? 20. What is draw filing?	

French	Food
French	**Food**

French	Food
<u>**Year 10 French Term 1 Quizzing**</u> A] Learn the Verbs, Nouns and Opinions sections on your KO and then translate these into French: 1. I use my computer 2. to look for information 3. and to watch videos 4. I use my laptop 5. to help me with my homework 6. I use my mobile 7. to chat with my friends 8. on social networks 9. I can't live without 10. my mobile and the internet B] Answer these questions in French in full sentences. Use your KO to help you create your answers, then learn your answers and practise writing them from memory: **1) Comment utilises-tu la technologie ?** What do you use technology for? **2) Quelle est ton opinion des réseaux sociaux?** What is your opinion of social networks? **3) Quelle est ton opinion des jeux vidéo ?** What is your opinion of computer games? **4) Quelles sont les avantages de la technologie?** What are the advantages of technology? **5) Est-ce qu'il y a des inconvénients de la technologie?** Are there disadvantages of technology?	**Year 10 20 Questions – Food Preparation & Nutrition** 1. Name the 2 water soluble vitamins? 2. Name the 4 fat soluble vitamins. 3. Name 4 minerals 4. Name the 3 macronutrients. 5. Which macronutrient is a secondary energy provider? 6. What does EAR stand for? 7. What does BMR stand for? 8. What nutrients does a teenage girl specifically need? 9. What is the function of vitamin A (retinol). 10. What is the function of Iron? 11. State 4 diet related diseases. 12. If you are suffering from goitre – you are lacking in what? 13. How can you reduce high blood pressure? 14. What is the function of vitamin E? 15. How can you minimise vitamin losses when cooking food? 16. What does fortification mean? 17. State a food which is fortified and with what nutrients? 18. Scurvy is due to a lack of which vitamin? 19. Iron helps to prevent which diet related disease? 20. Explain what is the Eatwell Guide.

Geography	Music	Heal

Living World Quiz Questions

1. Define ecosystem
2. What is the difference between the biotic and abiotic parts of an ecosystem
3. Name a producer in a small-scale ecosystem you have studied
4. Define biome
5. What is the role of the decomposers?
6. What is the litter layer?
7. The total weight of living things in an ecosystem is known as the ……
8. Name the four layers of the rainforest
9. How have plants adapted to the rainforest climate?
10. Describe the distribution of the rainforest
11. What are the causes of deforestation in rainforests
12. Identify and explain 3 different rainforest plant adaptations
13. List four ways that the rainforests can be managed sustainably
14. Describe the distribution of the deserts
15. What are the opportunities for people living in deserts?
16. What are the challenges of living in deserts?
17. How have desert plants and animals adapted to the harsh environment?
18. Define desertification
19. List three human causes of desertification
20. List three ways that desertification can be managed

Year 10 Term 1

1. How many beats in a bar is Popular music usually in?
2. What instruments would you usually find in a Pop/Rock band?
3. What is the typical structure of a Popular song?
4. What is a riff?
5. What are the main dynamics of Popular songs?
6. Name some technological effects that could be used in Popular songs
7. What do you call the people who sing harmonies in Popular songs?
8. What is the main texture of Popular music?
9. Name the typical instruments that are used in Bhangra music
10. What does the term conjunct mean?
11. What is a syllabic word setting?
12. What is a melismatic word setting like?
13. What are the four main voice types?
14. Name the four families in the orchestra
15. What is the musical word for how the music is organised?
16. What is the musical word for the main tune?
17. What is the musical word for how loud or quiet the music is?
18. What is the musical word for how fast of slow the music is?
19. What is the musical word for how many layers there are in a piece?
20. What are the two main types of tonality?

Also recognising images of the following instruments:
Electric Guitar   Bass Guitar   Acoustic Guitar
Keyboard   Synthesiser   Drum Kit

Science

B7

1. What is an ecosystem?
2. What is a community?
3. What is a habitat?
4. What is interdependence?
5. What is a quadrat?
6. Why are quadrats used?
7. Describe how a quadrat should be used
8. What is a transect line?
9. What are adaptations?
10. Why do animals need to adapt?
11. Give three adaptations of animals that live in warm environments
12. Give three adaptations of animals that live in cold environments
13. What is a food chain?
14. What is a food web?
15. What do the arrows in food chains represent?
16. Where does energy in a food chain come from?
17. What is a producer?
18. What is a consumer?
19. What is a primary consumer?
20. What is a secondary consumer?
21. What is a tertiary consumer?

C2 – Bonding and structure

1. When does ionic bonding occur?
2. When does covalent bonding occur?
3. What is a bond?
4. What is an alloy?
5. What are the differences between diamond and graphite?
6. How do metals bond?
7. What are the properties of ionic compounds?
8. What are the properties of covalent compounds?
9. What is a delocalised electron
10. Draw graphite

P2.2

1. What is the voltage of mains electricity in the UK?
2. What is the frequency of mains electricity in the UK?
3. What is direct current?
4. What sorts of power supplies produce direct current?
5. What is alternating current (a.c.)?
6. What sort of power supplies produce alternating current?
7. What colour is the neutral wire in a plug?
8. What colour is the Earth wire in a plug?
9. What colour is the live wire in a plug?
10. What is the function of the live wire in a plug?

Spanish	
Learn the yellow and green sections on your KO and then translate these into Spanish: 1. If I had lots of money, I would go to 2. If I could, I would visit 3. I would spend my holidays in 4. If I won the lottery, 5. I would travel around the world 6. when I'm twenty years old 7. when I'm older 8. How exciting! 9. I have just returned from my holidays in Spain. 10. How lucky! B] Answer these questions about your holidays in Spanish in full sentences. Use your KO (and the KS3 KOs) to help you create your answers, then learn your answers and practise writing them from memory: 1) **¿Qué tipo de vacaciones prefieres?** What type of holiday do you prefer? 2) **¿Adónde vas de vacaciones normalmente**? Where do you go on holiday normally? 3) **¿Qué haces de vacaciones cuando hace buen tiempo?** What do you do on holiday when it's nice weather? 4) **¿Qué haces de vacaciones cuando hace mal tiempo?** What do you do on holiday when it's bad weather? 5**) ¿Cómo serían tus vacaciones ideales?** What would your ideal holidays be like?	

Astronomy GCSE. Term 1

Planet Earth

Structure
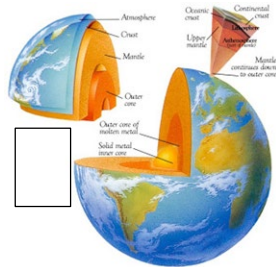
Atmospheric effects on observations
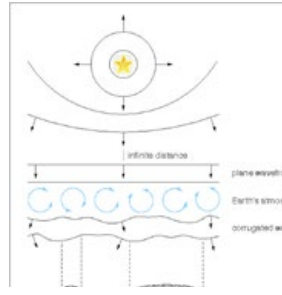
Major divisions on the Earth's surface. Astronomical reference points.
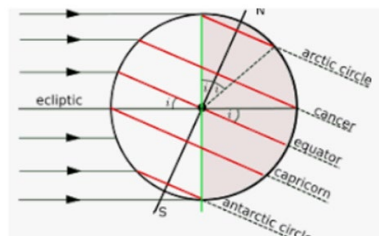
Latitude and Longitude

1. **Astronomical phenomena visible to the naked eye.**

Sun, moon, planets (mercury, venus, mars, Jupiter and Saturn), comets, etc.

6. The causes and effects of **light pollution** on observations of the night sky.

18. **Naked eye techniques** such as **dark adaption** and **averted vision**.

20. The appearance of the **Milky Way** from Earth as seen with the naked eye.

19. **Factors affecting visibility.**

8. Understand the use of the **equatorial coordinate system** (**right ascension** and **declination**) and the horizontal coordinate system (altitude and azimuth).

9. Use of the observer's **latitude** to link the **equatorial** and **horizon coordinates** of an object for the observer's **meridian**.

13. **Diurnal motion** of the sky due to the Earth's rotation.

14. Use a star's **declination** to determine whether the star will be **circumpolar** from an observer's **latitude.**

Astronomical phenomena

2. Recognise and be able to draw **constellations** and **asterisms.**

3. **Asterisms** as pointers to locate specific objects in the night sky eg. Ursa Major is a distinctive constellation that can be used to find **Polaris**. (The Pole star).

17. Be able to find the **latitude** of an observer using **Polaris**.

4. Different names for **constellations**, **asterisms** and **stars** amongst different cultures.

5. Using **Star charts**, **planispheres**, **computer programmes** or '**apps**' to identify objects in the night sky.

12. Understand the terms; **Cardinal points, culmination, meridian, zenith, circumpolarity.**

15. Apparent motion of **circumpolar stars**, including **upper transit** (**culmination**) and **lower transit**.

7. Understand the terms; **Celestial sphere, celestial poles** and **celestial equator.**

10. Understand how the **observer's meridian** defines **local sidereal time** and the **objects hour angle**

11. Using information on **equatorial** and **horizon coordinates** to determine the **best time to observe a celestial particular object** or the **best object(s) to observe at a particular time.**

16. Be able to use information about **rising** and **setting times** of **stars** to **predict** their approximate **position in the sky.**

1:1 Role of Business Enterprise and Entrepreneurship

Enterprise is: seeing an opportunity to provide a product or service that people are willing to buy

Risk-taking

Creativity

Entrepreneurial characteristics

Determination

Confidence

Risk	Reward
▪ **Financial** Possibility of losing money ▪ **Health** The strain of being in charge can affect health ▪ **Strained relationships** Starting a business is time consuming	▪ **Financial** Some successful entrepreneurs can make a lot of money ▪ **Independence** Some people like to be their own boss ▪ **Self-satisfaction** Some people like to see and idea work

Entrepreneur
A person who takes the risk of starting and running a business

Enterprising characteristics
Features of an entrepreneur

1:2 Business Planning

Purpose of a business plan:

▪ To reduce the risk of starting a business
▪ To help a business succeed

A business plan: details how a business aims to achieve its objectives

Role of a business plan:

▪ Identify markets
▪ Helping with finance
▪ Identifying resources needed
▪ Achieving aims and objectives

Competition — The idea — People running it — Market research — Finance — Contents of a business plan — Aims and objectives — Target market

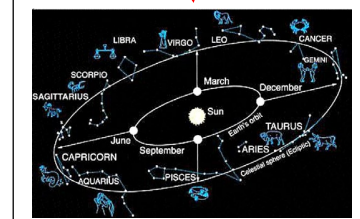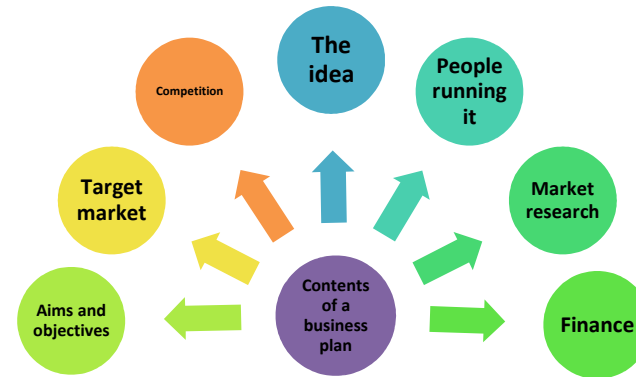**Business plan**
A simple plan which sets out the details of the business

Finance
The money needed to start the business

1:3 Business Ownership

Sole trader

Advantages	Disadvantages
▪ Easy to set up ▪ Little finance required ▪ Full control ▪ Keep all the profits ▪ Financial information is private	▪ Unlimited liability ▪ Business stops if ill or on holiday ▪ Long working hours ▪ Shortage of capital ▪ Skills shortage ▪ No continuity

Partnership

Advantages	Disadvantages
▪ More capital available ▪ Easy to set up ▪ More skills available ▪ Shared workload ▪ Financial information is private	▪ Shared profit ▪ Unlimited liability ▪ Shortage of capital ▪ Slower decision making ▪ No continuity

Private Limited Company (LTD)

Advantages	Disadvantages
▪ Limited liability ▪ Continuity ▪ Can raise capital more easily ▪ Control over share sale	▪ Financial information available to the public ▪ Complex and expensive to set up ▪ Sale of shares is restricted ▪ Dividends to be paid

Public Limited Company (PLC)

Advantages	Disadvantages
▪ Can raise large amounts of capital ▪ Easier to borrow money ▪ Limited liability for shareholders	▪ Possibility of a takeover ▪ Complex and expensive to set up ▪ Hard to manage as so large ▪ Financial information available to the public

Unlimited liability
Responsibility for the debts of the business rests with the owners
Capital
Money raised to start or develop a business

Deed of partnership
A document setting out the operations of the partnership
Sleeping partner
Someone who only invests in a partnership

Limited liability
Responsibility for the debts of the business is limited to the amount invested
Shareholders
Owners of a limited company

Dividend
Money paid to shareholders from business profits

Eatwell Guide
Use the Eatwell Guide to help you get a balance of healthier and more sustainable food. It shows how much of what you eat overall should come from each food group.

The Eatwell Guide
- Comprises 5 main food groups.
- Is suitable for most people over 2 years of age.
- Shows the proportions in which different groups of foods are needed in order to have a well-balanced and healthy diet.
- Shows proportions representative of food eaten over a day or more.

8 tips for healthier eating

These eight practical tips cover the basics of healthy eating, and can help you make healthier choices.
1. Base your meals on starchy carbohydrates.
2. Eat lots of fruit and veg.
3. Eat more fish – including a portion of oily fish.
4. Cut down on saturated fat and sugar.
5. Eat less salt (max. 6g a day for adults).
6. Get active and be a healthy weight.
7. Don't get thirsty.
8. Don't skip breakfast.

The nutritional needs of children aged 0-5 years

Protein is needed for growth and repair.
It is found in milk, cheese, meat, eggs and quorn. Beans and lentils also contain protein.
Too little leads to stunted growth

Fat
Sources of fat include butter, oil, margarine, meat, cheese, milk.

Fat gives us energy but also is needed to:
- Protect vital organs
- Carrier of Vitamins ADEK
- Help brain function
Too much can lead to obesity

Carbohydrates are needed for energy

Fibre is a term used for plant-based carbohydrates that are not digested in the small intestine.
Sugars are found in sugar, honey and syrup and naturally in fruit.
Starchy foods are the main source of carbohydrate for most people and are an important source of energy. We should be choosing wholegrain versions of starchy foods where possible.

Vitamins
There are two groups of vitamins:
- fat-soluble vitamins, e.g. vitamins A and D.
- water-soluble vitamins, e.g. B vitamins and vitamin C.

Minerals
Calcium is essential for the maintenance of bones and teeth, blood clotting and normal muscle function. Lack of calcium can lead to rickets
Sodium is needed for regulating the amount of water and other substances in the body.
Iron is essential for making haemoglobin in red blood cells. Lack of iron can lead to anaemia

Key word	definition
Eat well plate	Shows the proportions in which different groups of foods are needed in order to have a well-balanced and healthy diet.
Macro nutrients	The nutrients we need to eat in large amounts
Micro nutrients	The nutrients we need to eat in small amounts
Protein	A macro nutrient Needed for growth and repair
Fat	A macro nutrient Needed for energy
Carbohydrate	A macro nutrient Needed for energy
rickets	Illness that causes bone pain, poor growth and soft, weak bones that can lead to bone deformities
obesity	describes a person who's very **overweight**
Stunted growth	When children do not grow to their full height, sometimes due to lack of food.

To find out more, go to:

Cambridge National Child Development text book
Food a fact of life website

This resource meets the ***Guidelines for producers and users of school education resources about food.***

www.foodafactoflife.org.uk

Key content

Comparative operators

==	Equal to
!=	Not equal to (or different to)
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to

Arithmetic operators

Operation	Symbol	Example	Output
Addition	+	2 + 10	12
Subtraction	-	9 − 6	3
Multiplication	*	5 * 4	20
Division	/	5 / 2	2.5
Floor Division	//	7 // 2	3
Remainder	%	7 % 3	1
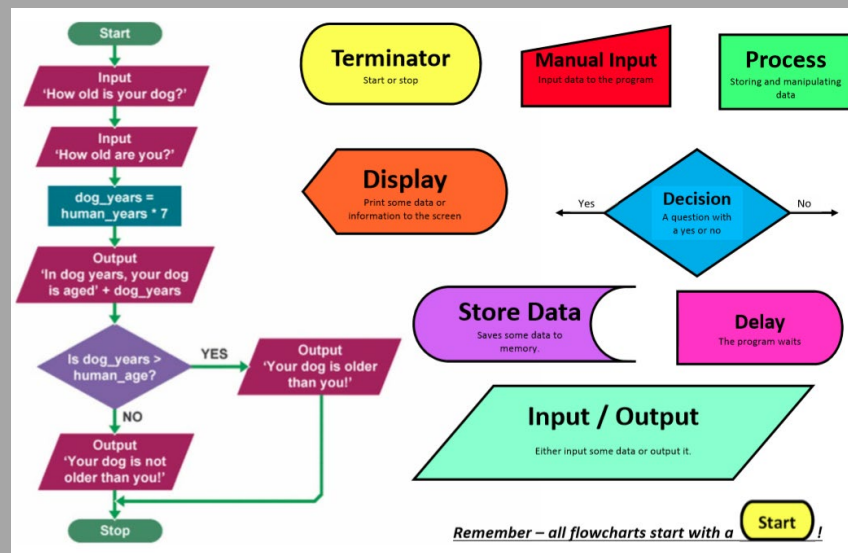
Key vocab

Word	Definition
Abstraction	The process of removing unnecessary details and including only the relevant details. It is a method of computational thinking that focusses on what is important in problem solving
Decomposition	The process of breaking a complex problem down into smaller more manageable parts. Dealing with many different stages of a problem at once is much more difficult than breaking a problem down into a number of smaller problems and solving each, one at time.
Flowchart	A method of representing the sequences of steps in an algorithm in the form of a diagram. Sometimes called a Flow diagram
Structure Diagram	A diagram showing a top-down breakdown of a complex problem
Pseudocode	A text based alternative of representing the sequences of steps in an algorithm. Pseudo-code can be thought of as a simplified form of programming code.
OCR Reference Language	You must be able to read this but you can always use Python in your exams— but be precise
Syntax Error	Syntax errors are errors which break the grammatical rules of the programming language. They stop it from being run/translated
Logic Error	Errors which won't stop the program running. Logic errors are errors which produce unexpected output. E.g Outputting an answer that was multiplied when it should have been taken away

Diagrams

More info can be found here:
https://youtu.be/wLJ1n47sGRI

| Word	Definition
Stage positions	Where an actor or prop or set piece is on stage
Stage left/stage right	It is the actor's left or right, as if you were the actor stood on stage looking at the audience
Upstage/down stage	In the past, stages were sloped towards the audience. Walking closer to the audience would literally be walking "down".
Backstage	Out of the view of the audience e.g. the wings or the dressing rooms. It's the stage manager's domain.

Word	Definition
In the round	Audience sit in a circle, staging can't obscure the audience's view and so has to be limited in height and careful attention to movement is required to avoid backs to the audience.
Traverse	Audience sat either side of the stage, similar to a cat-walk. Again staging can't obscure the audience's view and actors should not keep their back to the same section of the audience for too long.
Thrust	Thrust stage: Audience sit on three sides of the stage, this staging type does not have curtains to separate the audience from the stage which makes it difficult to change sets during a performance.
End-on/Proscenium Arch	The audience sit on raked seating, all facing the same direction. 'As if looking through a window', it is easier for an actor to block out the audience and also can create and use elaborate backdrops and sets.
Promenade	The audience are able to move from place to place through a story, allows for a very immersive experience and can draw on the environment for inspiration.

Role	Responsibilities of role
Director	In charge of all artistic elements of the play, works will all other roles, "concept"
Playwright	Writes the play
Performer	Realises a role within the play
Understudy	Learns the cues and lines of blocking of lead part in case of sickness
Light/sound/costume/set designer	Designs, plans and sources for their role
Technician	Work backstage setting up/running technical equipment e.g. microphones, lights, sound
Stage manager	Everything BACKSTAGE. Moves with the production, in charge of props and rehearsal schedule
Theatre manager	Everything FRONT OF HOUSE. Stays in the theatre, in charge of box office and ice cream

By the end of this term you have been introduced to the play-text we are going to study. "Blood Brothers" by Willy Russell. Including characters, themes and context.

methuen | drama modern classics

WILLY RUSSELL BLOOD BROTHERS

BLOOMSBURY
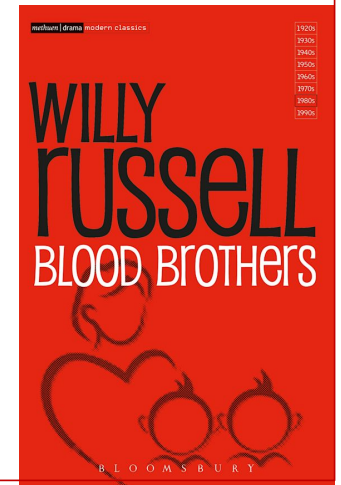
Inside a wind turbine

KEY WORDS

Fossil fuels:- a natural fuel such as coal, oil or gas, formed from the remains of living organisms.

Global warming:- an increase in the temperature of the earth's atmosphere caused by the greenhouse effect and increased levels of greenhouse gases.
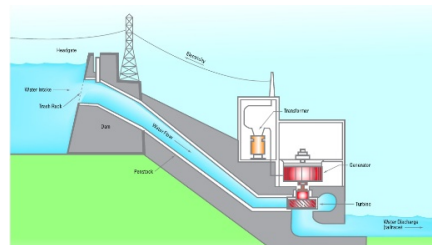
Fission:- the process in which uranium atoms are split and produce heat.

Renewable energy:- energy from a source that is not depleted when used, such as wind or solar power.

Hydroelectricity:- the process which uses a dam to block a river in a valley and channels water through turbines that are used to turn generators for producing electricity.

Biomass:- growing plants so that they can be burnt, or using decaying plant or animal materials to produce heat.

Fossil fuels generation

Burn Fuel → Heat water to Make steam → Steam turns turbines → Turbines turn generators → Electrical power

FOSSIL FUELS: Coal, Oil, Gas, Nuclear
RENEWABLE ENERGY SOURCES: Hydro/Waves, Solar, Wind

POWER STATION → TURBINE — steam — brushes supplying DC current to the electromagnet → GENERATOR — stator, magnet — 22,000 volts AC → STEP UP TRANSFORMER — 275,000 or 400,000 volts AC

Magnetic bearing, Vacuum chamber, Generator/motor unit, Flywheel, Vacuum pump, Magnetic bearing, Power conditioning, External grid

Energy generation in the UK

2007 / 2017

3% 6% 19% 49% 22%
1% 7% 8% 32% 20% 30%

■ Coal ■ Natural gas
■ Nuclear ■ Hydroelectric
■ Wind and other ren ■ Petroleum liquids
■ Petroleum coke ■ Gas (Other)
□ Other □ Solar

www.explainthatstuff.com
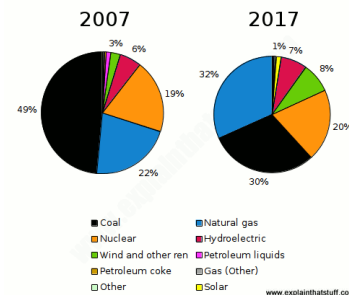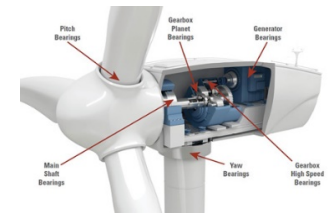
Alternative Energy Supplies

Renewable energy sources unlike fossil fuels do not tend to produce waste or significantly add to global warming by producing gases.

Tidal energy supply

Sluice gates, High water mark, Barrage, Basin, Low water mark, Sea

Sunlight
-ve electrode
Nonreflecting shield
N-type silicon
P-type silicon
+ve electrode
Load
Current
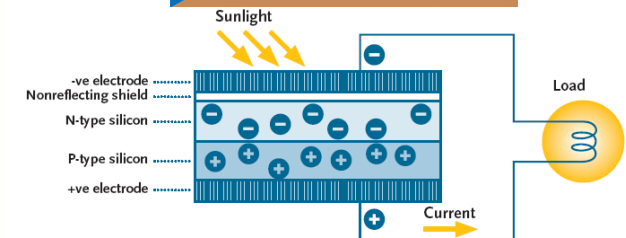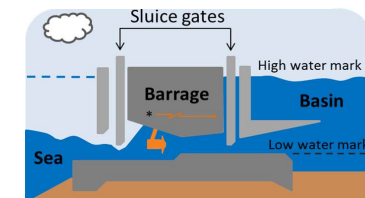
Figure 1 Principle of operation for PV cell

Kinetic pumped storage system

Ways to store energy

Mechanical:- Flywheel or spring as in a clock mechanism.

Electrical:- Capacitor or Battery

DESIGN TECHNOLOGY
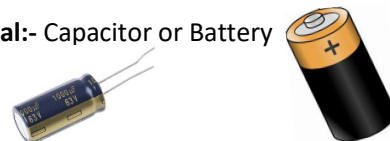
KEY POINTS

- We rely on energy to power most aspects of our lives, such as light, heat, transport and communication.
- All fuels and biofuels cause pollution when burnt.
- Coal, gas and oil are fossil fuels, and are finite resources.
- Most renewable sources reduce the risk of pollution.
- Many renewables cannot provide a constant supply, unlike fossil fuel or nuclear-powered power stations.
- Storage systems cannot generate power, but are useful for when extra supply is needed quickly, or if it is not possible to connect to a supply.

Poem	A03 context	A02 form, Structure, language	A01 Key Quotations
Charge of the Light Brigade 1854) Alfred Lord Tennyson	Based on the Crimean War where a miscommunication sent the Light Brigade into combat. Tennyson was poet Laureate, which could explain the **propogandist** tone.	**3rd Person. Strong rhythm and regular rhythm - Dactylic Dimeter** is used to reflect the horses hooves **Repetition** and **anaphora** emphasises relentless forward motion of the soldiers and how they followed orders.	'into the jaws of death, into the mouth of hell' 'cannon to the left of the, cannon to the right of them, canon in front of them.
Exposure (1971) Wilfred Owen	Owen fought in France during World War I; the poem records the horrendous conditions that British soldiers experienced on the front line.	**Para-rhyme scheme** of ABBAC- reflects uncomfortable conditions of the soldiers. Also uses **assonance**,	'Our brains ache in the merciless iced east winds that knife us'. 'sudden successive flights of bullets streak the silence'
Bayonet Charge (1957) Ted Hughes	Hughes writes from the perspective of a soldier charging across no-man's land; the solider is disorientated and fearful.	**Verbs** and **enjambment**- gives a frantic feel to the poem – reflects the soldiers movement. **Semantic fields** of war and nature are juxtaposed, showing impact of war on nature.	'Bullets smacking the belly out of the air' 'King, honour, human dignity, etcetera/ Dropped like luxuries in a yelling alarm'
Remains (2008) Simon Armitage	Armitage writes from the perspective of a solider in the Middle East; the solider returns home suffering from post-traumatic stress syndrome (PTSD).	**Short clauses, enjambment and colloquialisms** creates an impression of natural speech. **Enjambment** also reflects continuing nature of memories after war.	'I see every round as it rips through his life' 'his blood shadow stays on the street and out on patrol I walk over it week after week'
Poppies (2009) Jane Weir	Weir writes from the perspective of a mother whose son has gone to war; the poem explores the conflicting emotions experienced by those who are left behind	**First person dramatic monologue** allows us to see inner emotions of the speaker. Frequent **Symbols** and **Metaphors** used to highlight powerful emotions.	'spasms of paper red' 'steeled the softening of my face' 'later a single dove flew from a pear tree'
War Photographer (1985) Carol Ann Duffy	Duffy based the poem on accounts from Don McCullin; the poem invites us to reflect on our increasing lack of sensitivity to the images of war we see in the media.	**Regular rhyme** and stanza length used to reflect the disciplined way the photographer does his job. **Contrasts** used to highlight intensity of war and indifference of the reader.	'spools of suffering set out in ordered rows' 'his hands, which did not tremble then though seem to now.'
Kamikaze (2007) Beatrice Garland	Garland based her poem on the testimony of the daughter of a kamikaze pilot; the conflict in the poem centres on Japanese cultural and social expectations.	**Italics** used to show **direct speech** and impact of the mother's words. **Colour imagery, similes and metaphors** suggest the vibrancy of life that the pilot did not want to lose.	'strung out like bunting on a green-blue translucent sea' 'he must have wondered which had been the better way to die.'
The Emigree (1993) Carol Rumens	Rumens writes from the perspective of a person who has left their home country; there is conflict between childhood memories and adult understanding	Written as a **Soliloquy. Repetition** of 'they' suggests menace and oppression and r**epetition** of 'Sunlight' is used as a symbol of freedom, contrasting with metaphors if isolation.	'it may be sick with tyrants, but I am branded by an impression of sunlight' 'My city takes me dancing'

Tasks:
Use the table as a starting point
- **Create a glossary of poetic techniques**. Start by finding the meanings of the words highlighted in bold in the chart. Include Form, Structure and language key terms.
- Create revision cards for each of the poems.
- **Identify 3-4 key quotations in the poems**. Mine the language used in these quotations.
- **Learn the key quotations.**
- **Identify the themes in the poems** – make links between the poems/group them together by themes
- **Make links between the poems.**
- **Write a comparative essay –** Use the link below for questions.

Revision websites/useful links:
Mr Bruff videos on all of the poems:
https://www.youtube.com/playlist?list=PLqGFsWf-P-cAO64IBHZTFwTz2X0DD_Cxk

Notes and annotations on all poems:
http://thebicesterschool.org.uk/wp-content/uploads/2017/02/Poetry-Support-Booklet.pdf

Practise questions:
https://www.turton.uk.com/wp-content/uploads/sites/2/2017/01/Resource-25-Conflict-poetry-questions.pdf

Food Labelling

Food labelling
Manufacturers include a range of information on food labels. Some of which is legally required and some of which is useful to the consumer or supermarket.

Nutrition information helps consumers make healthier choices. Back-of-pack nutrition information is legally required on food packaging.

NUTRITION
When heated according to instructions

Typical values	Per 100g	Each pack (390g**)
Energy	457kJ	1781kJ
	109kcal	424kcal
Fat	3.9g	15.2g
of which saturates	1.9g	7.5g
Carbohydrate	12.1g	47.1g
of which sugars	1.6g	6.2g
Fibre	1.1g	4.2g
Protein	5.8g	22.6g
Salt	0.6g	2.2g

Legally required information
1. Name of food or drink.
2. List of ingredients (including water and food additives), in descending order of weight.
3. Weight or volume.
4. Date mark (Best-before and use-by).
5. Storage and preparation conditions.
6. Name and address of the manufacturer, packer or seller.
7. Country of origin and place of provenance.
8. Nutrition information.

Additional information may also be provided, such as cooking instructions, serving suggestions or price.

Date marks
Best-before-date: The date after which foods may not be at their best, although probably safe to eat if stored according to instructions.
Use-by-date: The date given to foods that spoil quickly, such as cooked meats. It is unsafe to eat foods beyond their use-by-date.

Beetroot salad
Keep refrigerated. Once opened consume within 24 hours and by the 'use-by' date shown.

Additives
Food additives must be shown clearly in the list of ingredients on food labels, either by the additive's name or **E number.**
Additives are added to ensure safety, increase shelf life or improve the taste, texture or appearance of food. Additives need to be approved before they can be used. Additives are given an '**E number**' to show that they have been rigorously tested for safety and have been approved for use in food by the European Commission.
An example is E100 or curcumin, made from turmeric.

Another example is caramel (E150), a synthetic colouring commonly used to colour colas.

Key terms
Additives: Are added to ensure safety, increase shelf life or improve the taste, texture of appearance of food. They must be shown clearly on food labels.
Allergen labelling: Allergens must be clearly shown in **bold**, highlighted, underlined or in *italics*.
Back-of-pack labelling: Is legally required and can help consumers make healthier choices.
Claim: Any statement about the nutrient content or health benefit of a food product.
Front-of-pack labelling: Is voluntary but must provide certain information and can use red, amber and green colour coding.
Labelling: The term given to the information about the product which is displayed on the packaging.
Nutrition information: Helps consumers make healthier choices.

Front-of-pack labelling
Front-of pack-nutrition information is voluntary but if a food business chooses to provide this, only the following information may be provided:
- energy only;
- energy along with fat, saturates, sugar and salt.

Red, amber and green colours, if used, show at a glance whether a food is high, medium or low for fat, saturates, sugars or salt. The colour coding can be used to compare two products.

Nutrient	Low	Medium	High	
Fat	≤3.0g/100g	>3.0g to ≤17.5g/100g	>17.5g/100g	>21g/portion
Saturates	≤1.5g/100g	>1.5g to ≤5.0g/100g	>5.0g/100g	>6.0g/portion
(Total sugars)	≤5.0g/100g	>5.0g and ≤22.5g/100g	>22.5g/100g	>27g/portion
Salt	≤0.3g/100g	>0.3g to ≤1.5g/100g	>1.5g/100g	>1.8g/portion

Note: Portion size criteria apply to portion sizes/servings greater than 100g.

To find out more, go to:
https://bit.ly/2SPnj1g
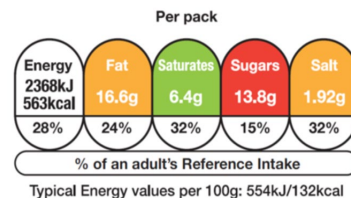
Allergen labelling
An allergic reaction to a food can be described as an inappropriate reaction by the body's immune system to the ingestion of a food.
By law, food, drink and ingredients that are known to contain allergens are required to be in **bold**, highlighted, underlined or in *italics*.
The most common allergens are present in:

Celery (and celeriac)
Cereals containing gluten
Crustaceans
Eggs
Fish
Lupin
Milk
Molluscs
Mustard
Nuts
Peanuts
Sesame
Soybeans
Sulphur dioxide

INGREDIENTS
Water, Carrots, Onions, Red Lentils (4.5%), Potatoes, Cauliflower, Leeks, Peas, Cornflour, **Wheat** flour, Cream (**milk**), Yeast Extract, Concentrated Tomato Paste, Garlic, Sugar, **Celery** Seed, Sunflower Oil, Herb and Spice, White Pepper, Parsley
ALLERGY ADVICE
For allergens, see ingredients in **bold**

Nutrition and health claims
Nutrition and health claims are controlled by European regulations. Claims on a food or drink should have been authorised and listed on the European register of claims and have met certain conditions.
Nutrition claims
A nutrition claim describes what a food contains (or does not contain) or contains in reduced or increased amounts. Examples include:
- Low fat (less than 3g of fat per 100g of food);
- High fibre (at least 6g of fibre per 100g of food);
- Source of vitamin C (at least 15% of the nutrient reference value for vitamin C per 100g of food).

Health claims
A health claim states or suggests there is a relationship between a product and health. In order to make a claim, the amount present of the nutrient, substance or food must fulfil the specific conditions of use of the claim. The types of health claims are:
- 'Function Health Claims';
- 'Risk Reduction Claims';
- Health 'Claims referring to children's development'.

Tasks
1. Find four different packaged food items in your household or online and list the information provided on the packaging. Explain the purpose of each piece of information and identify if it is legally required or consumer information.
2. Explain the importance of date marks and storage instructions, including the consequences of not following them.
3. Find a range of different products and assess the traffic light system on each one – is it a healthy product or not? Explain your answer and make recommendations for improvements.
4. Using your class notes, explain what 'e' means on a package.

Food Preparation & Nutrition

La technologie – Technology

Quand? – When?

tous les jours – every day
le matin – in the morning
l'après-midi – in the afternoon
le soir – in the evening
pendant la pause – at break time
quand j'ai le temps – when I have time
quand je n'ai rien d'autre à faire – when I don't have anything else to do
pendant mes heures libres – in my free time
les weekend – at weekends
pendant les vacances – during the holidays
quelquefois – sometimes
de temps en temps – from time to time

Noms - Nouns

un ordinateur – a computer
un ordinateur portable – a laptop
une console de jeu vidéo – a games console
les sites web – websites
un mot de passe – a password
un lecteur MP3 – an MP3 player
une application (une appli) – an app
les jeux vidéo – videogames
un appareil-photo – a camera
un réseau social – a social network
les réseaux sociaux –social networks
mon portable – my mobile
les téléchargements – downloads
les inconnus – strangers   **le danger** – danger
le problème – the problem
les jeunes– young people
un tweeter – a Twitter user
un compte – an account   **le clavier** – the keyboard
mon mur Facebook – my Facebook wall
la confidentialité – privacy
un virus informatique – a computer virus
la cyber-intimidation – cyber-bullying
le vol d'identité – identity theft
l'internet / la Toile / le web – the www
des pourriels – spam emails

Les Verbes – Verbs

je l'utilise pour – I use it for *(+infinitive)*
j'utilise – I use
j'ai utilisé – I used
je vais utiliser – I'm going to use
pour – for / in order to
je m'habitue à – I usually *(+infinitive)*
télécharger – to download
blogger- to blog
faire partie d'un groupe – to take part in a group
prendre des photos – to take photos
jouer à des jeux vidéo – to play videogames
écouter de la musique – to listen to music
garder le contact – to keep in contact
je dépense de l'argent sur – I spend money on
lire les nouvelles – to read the news
m'aider avec les devoirs – to help me with my homework
chercher de l'information – to search for information
surfer sur internet – to surf the net
partager – to share
envoyer un courrier électronique – to send an email
envoyer/recevoir un message – to send/receive a message
tweeter – to tweet   **un tweet / retweet** – a tweet/retweet
mettre à jour mon status – to update my status
ajouter des photos – to upload photos
tchatter – to chat
écrire un commentaire - to comment
regarder des vidéos – to watch videos
acheter sur internet – to buy online
recevoir un courrier indésirable – to receive a spam email
il y a – there is/are
il n'y a pas de – there isn't/aren't

À mon avis – In my opinion

je crois que – I believe that   **je pense que** – I think that
à mon avis – in my opinion   **j'adore** – I love   **j'aime** – I like
je n'aime pas - I don't like   **je déteste** – I hate
je préfère – I prefer   **ce que j'aime (le plus) est** – What I like (most) is
ce que je n'aime pas (du tout) est – What I don't like (at all) is
ma mère aime – my mum likes   **selon** – according to
mon père pense que – my dad thinks that
beaucoup de gens pensent que… – Lots of people think that…
c'est – it is   **ce sont** – they are
cela peut être – it can be

> **+ adjectives – see right! >>>**

cela m'ennuie – it bores me   **cela m'intéresse** – it interests me
c'est une perte de temps / d'argent – it's a waste of time/money
il faut être prudent / se méfier– you have to be careful / beware
je ne peux pas vivre sans – I can't live without
l'avantage – the advantage   **l'inconvénient** – the disadvantage
en cas d'urgence – in case of emergency
je suis / je ne suis pas d'accord – I am / am not in agreement
l'interdiction des portables au college est juste / n'est pas juste - the mobile ban at school is fair / is not fair
la règle est trop stricte. On nous traite comme des enfants et j'en ai marre. – the rule is too strict. They treat us like children and I'm fed up with it.
si un portable sonne en classe ça perturbe les cours – if a phone rings in class it disturbs the lessons
il faut que les élèves se concentrent sur leurs études - it's necessary for students to concentrate on their studies

Des adjectifs:

ennuyeux – boring
génial – great
intéressant – interesting
fantastique – fantastic
barbant - dull
cool – cool
important - important
bon marché – cheap
cher - expensive
moderne – modern
fascinant – fascinating
relâchant – relaxing
facile – easy
difficile – difficult
dangereux – dangerous
essentiel – essential
rapide – quick
lent – slow
confus – confusing
pratique – practical
utile – useful
addictif – addictive
compétitif – competitive
en ligne – online
amusant - fun
privé – private
illégal – ilegal
accro - addicted

Hier soir j'ai utilisé mon portable pour tchatter avec mes copains et je me suis bien amusé car c'était rigolo. Aussi j'ai utilisé ma console pour jouer à des jeux vidéo mais c'était un peu barbant et répétitif. Yesterday evening I used my mobile to chat online with my friends and I had a good time because it was funny. Also I used my console to play computer games but it was a bit dull and repetitive.

La fonctionnalité de mon smartphone est fantastique car on peut télécharger des applis de toutes sortes qui sont souvent gratuites. Mon appli préférée est celle qui m'aide à pratiquer mon vocabulaire de français. The functionality of my smartphone is fantastic because you can download apps of all kinds which are often free. My favourite app is the one which helps me to practise my French vocab.

Je crois que mon copain est devenu accro à son portable car il ne veut plus sortir avec nous. C'est inquiétant. I think that my friend has become addicted to his mobile because he no longer wants to go out with us. It's worrying.

Selon mon père, les réseaux sociaux peuvent être utiles, mais il faut faire attention car il y a des gens qui veulent commettre le vol d'identité. According to my dad, social networks can be useful, but you have to watch out because there are people who want to commit identity theft.
Ma mère dit que les portables et les réseaux sociaux font partie de la vie moderne, et je suis d'accord – my mum says that mobiles and social networks are part of modern life, and I agree.

What is an Ecosystem?

An ecosystem is a system in which organisms interact with each other and with their environment.

Ecosystem Components

Abiotic	These are **non-living**, such as air, water, heat and rock.
Biotic	These are **living**, such as plants, insects, and animals.

	Flora	**Plant life** occurring in a particular region or time.
	Fauna	**Animal life** of any particular region or time.

Food Web and Chains

Simple **food chains** are useful in explaining the basic principles behind ecosystems. They show only one species at a particular trophic level. **Food webs** however consists of a network of many food chains interconnected together.
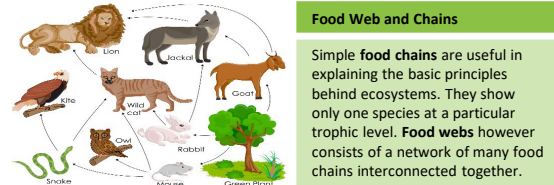
Nutrient cycle

Plants take in **nutrients** to build into new organic matter. Nutrients are taken up when animals eat plants and then returned to the soil when animals die and the body is broken down by **decomposers**.

Litter	This is the **surface layer** of vegetation, which over time breaks down to become **humus**.
Biomass	The total **mass of living organisms** per unit area.

Biomes

A biome is a **large geographical area of distinctive plant and animal groups**, which are adapted to that particular environment. The climate and geography of a region determines what type of biome can exist in that region.

	Coniferous forest
	Deciduous forest
	Tropical rainforests
	Tundra
	Temperate grasslands
	Tropical grasslands
	Hot deserts.

The **most productive biomes** – which have the greatest biomass- grow in climates that are **hot and wet**.
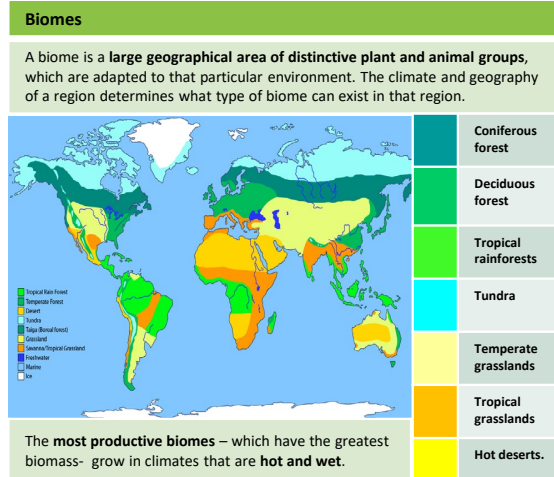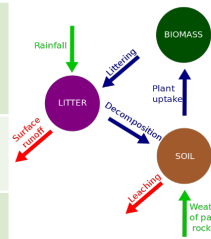
Biome's climate and plants

Biome	Location	Temperature	Rainfall	Flora	Fauna
Tropical rainforest	Centred along the Equator.	Hot all year (25-30°C)	Very high (over 200mm/year)	Tall trees forming a canopy; wide variety of species.	Greatest range of different animal species. Most live in canopy layer
Tropical grasslands	Between latitudes 5°- 30° north & south of Equator.	Warm all year (20-30°C)	Wet + dry season (500-1500mm/year)	Grasslands with widely spaced trees.	Large hoofed herbivores and carnivores dominate.
Hot desert	Found along the tropics of Cancer and Capricorn.	Hot by day (over 30°C) Cold by night	Very low (below 300mm/year)	Lack of plants and few species; adapted to drought.	Many animals are small and nocturnal: except for the camel.
Temperate forest	Between latitudes 40°- 60° north of Equator.	Warm summers + mild winters (5-20°C)	Variable rainfall (500-1500m /year)	Mainly deciduous trees; a variety of species.	Animals adapt to colder and warmer climates. Some migrate.
Tundra	Far Latitudes of 65° north and south of Equator	Cold winter + cool summers (below 10°C)	Low rainfall (below 500mm/ year)	Small plants grow close to the ground and only in summer.	Low number of species. Most animals found along coast.

CASE STUDY: UK Ecosystem: Epping Forest, Essex

This is a typical English lowland deciduous woodland. **70% of the area** is designated as a **Site of Special Scientific Interest (SSI)** for its biological interest, with **66 %** designated as a **Special Area of Conservation (SAC)**.

Components & Interrelationships		Management
Spring	**Flowering plants** (producers) such as bluebells store nutrients to be eaten by consumers later.	- Epping has been managed for centuries. - Currently now used for **recreation** and **conservation**. - Visitors **pick fruit** and berries, helping to **disperse seeds**. - Trees cut down to encourage **new growth for timber**.
Summer	Broad tree leaves grow quickly to **maximise photosynthesis**.	
Autumn	Trees shed leaves to **conserve energy** due to sunlight hours decreasing.	
Winter	Bacteria **decompose** the leaf litter, releasing the nutrients into the soil.	

Unit 1b
The Living World

AQA

Tropical Rainforest Biome

Tropical rainforest covers about **6 %** of the Earth's land surface yet they are home to **over half of the world's plant and animals**.

Interdependence in the rainforest

A rainforest works through **interdependence**. This is where the plants and animals **depend on each other** for survival. If one component changes, there can be **serious knock-on effects** for the entire ecosystem.
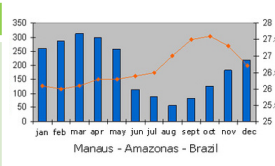

Distribution of Tropical Rainforests

Tropical rainforests are **centred along the Equator** between the Tropic of Cancer and Capricorn. Rainforests can be found in South America, central Africa, South-East Asia & North West Australia **The Amazon** is the world's largest rainforest and takes up the majority of northern South America, encompassing countries such as Brazil and Peru.

Rainforest nutrient cycle

The **hot, damp conditions** on the forest floor allow for the **rapid decomposition** of dead plant material. This provides plentiful nutrients that are easily absorbed by plant roots. However, as these nutrients are in high demand from the many fast-growing plants, they do not remain in the soil for long and stay close to the surface. If vegetation is removed, the soils quickly become **infertile**.

Layers of the Rainforest

Emergent	Highest layer with trees reaching **50 metres +** e.g. Kapok trees
Canopy	Most life is found here as It receives **70% of the sunlight** and **80% of the life.**
Under Canopy	Consists of trees that reach **20 metres high.**
Shrub Layer	Lowest layer with **small trees** that have adapted to living in the **shady conditions**

Climate of Tropical Rainforests

- Temperatures are consistently above **25°C**.
- Due to the **presence of clouds**, temperatures rarely rise above **32°C**.
- Most afternoons have heavy showers.
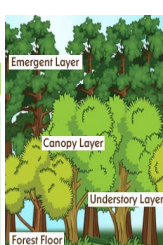- At night with no clouds insulating, temperature drops.

Manaus - Amazonas - Brazil

Tropical Rainforests: Case Study Malaysia

Malaysia is a LIC country in south-east Asia. 67% of Malaysia is a tropical rainforest with 18% of it not being interfered with. However , Malaysia has the fastest rate of deforestation compared to anywhere in the world

Adaptations to the rainforest

Buttress roots	Large external base ridges support the huge trees.
Drip Tips	Allows heavy rain to **run off leaves easily**.
Lianas & Vines	**Climb** trees to reach sunlight in the canopy.

Rainforest indigenous people (tribes)

Many tribes have developed sustainable ways of survival. The rainforest provides inhabitants with…
- **Food** through hunting and gathering.
- **Natural medicines** from forest plants.
- **Homes and boats** from forest wood.

Issues related to biodiversity

Why are there high rates of biodiversity?

- **Warm and wet climate** encourages a wide range of vegetation to grow.
- There is **rapid recycling of nutrients** to speed plant growth.
- Most of the rainforest is **untouched.**

Main issues with biodiversity decline

- **Keystone species** (a species that is important to other species) are extremely important in the rainforest ecosystem. Humans are threatening these vital components.
- **Decline in species** could cause tribes being unable to survive.
- **Plants** & **animals** may become **extinct.**
- Key plants used in medicine are **extinct.**

What are the causes of deforestation?

Logging

- Most widely reported cause of destruction to biodiversity.
- Timber is harvested to create **commercial items** such as furniture and paper.
- **Violent confrontation** between indigenous tribes and logging companies.

Agriculture

- Large scale **'slash and burn'** of land for ranches and palm oil.
- Increases **carbon emissions**.
- **River siltation** and **soil erosion** increasing due to the large areas of **exposed land.**
- Increase in **palm oil** is making the **soil infertile.**

Mineral Extraction

- **Precious metals/ores** are found in the rainforest.
- Areas **mined** can experience **soil and water contamination.**
- **Indigenous people** are becoming **displaced** from their land due to roads being built to transport products.

Tourism

- **Mass tourism** is resulting in the building of hotels in extremely **vulnerable areas**.
- Lead to **negative relationship** between the government and indigenous tribes
- Tourism has **exposed animals** to human **diseases.**

Energy Development

- The **high rainfall** creates ideal conditions for **hydro-electric power (HEP).**
- The **Bakun Dam** in Malaysia is key for creating energy in this developing country, however, both people and environment have suffered.

Road Building

- **Roads** are needed to bring supplies and **provide access** to new mining areas, settlements and energy projects.
- In Malaysia, logging companies use an **extensive network of roads** for heavy machinery and to transport wood.

Impacts of deforestation

Economic development

+ Mining, farming and logging creates employment and tax income for government.
+ Products such as palm oil provide valuable income for countries.
- The loss of biodiversity will reduce tourism.

Soil erosion

- Once the land is **exposed by deforestation,** the soil is more **vulnerable to rain**.
- With **no roots to bind soil together**, soil can easily be **washed away.**

Climate Change

- When rainforests are cut down, the climate becomes **drier.**
- Trees are **carbon 'sinks'**. With greater deforestation comes more greenhouse emissions in the atmosphere.
- When trees are burnt, they **release more carbon in the atmosphere**. This will enhance the **greenhouse effect.**

Sustainability for the Rainforest

Uncontrolled and unchecked exploitation can cause irreversible damage such as loss of biodiversity, soil erosion and climate change.

Possible strategies include:
- **Agro-forestry** - Growing trees and crops at the same time. It prevents soil erosion and the crops benefit from the nutrients.
- **Selective logging** - Trees are only felled when they reach a particular height, or only certain trees are taken, not all.
- **Education** - Ensuring local people understand the consequences of deforestation
- **Afforestation** - If trees are cut down, they are replaced.
- **Forest reserves** - Areas protected from exploitation by laws
- **Ecotourism** - tourism that promotes the environment & conservation

Thar Desert – India/Pakistan or the Mojave in the SW of the USA

The Thar Desert is located on the border between India and Pakistan in Southern Asia whereas the Mojave is located in the South West of the USA

Distribution of the world's hot deserts

Most of the world's hot deserts are found in the **subtropics** between **20 degrees and 30 degrees north & south** of the Equator. The **Tropics of Cancer and Capricorn** run through most of the worlds major deserts.
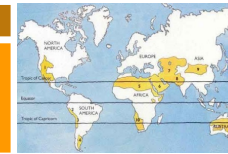
Major characteristics of hot deserts

- **Aridity** – hot deserts are extremely dry, with annual rainfall below **250 mm**.
- **Heat** – hot deserts rise over **40 degrees**.
- **Landscapes** – Some places have dunes, but most are **rocky with thorny bushes.**

Hot Deserts inhabitants

- People often live in large **open tents** to keep cool.
- Food is often **cooked** slowly in the **warm sandy soil.**
- **Head scarves** are worn by men to provide **protection from the Sun.**

Climate of Hot Deserts

- **Very little rainfall** with less than **250 mm** per year.
- It might only rain once every two to three years.
- Temperatures are **hot in the day (45 °C)** but are **cold at night** due to little cloud cover (5 °C).
- In winter, deserts can sometimes receive occasional frost and snow.

T = 25.9 °C
P = 18 mm
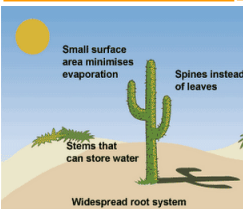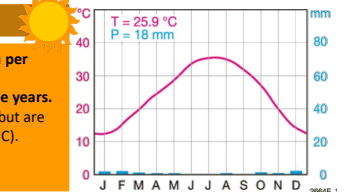
Adaptations to the desert

Cactus	- **Large roots** to absorb water soon after rainfall. - **Needles** instead of leaves to reduce surface area and therefore **transpiration.**
Camels	- Hump for storing **fat (NOT water).** - **Wide feet** for walking on sand. - **Long eyelashes** to protect from sand.

Desert Interdependence

Different parts of the hot desert ecosystem **are closely linked together and depend on each other**, especially in a such a harsh environment.

Opportunities and challenges in the Hot desert

Opportunities	Challenges
- There are valuable minerals for industries and construction. E.g. gypsum & phosphorus - Energy resources such as coal and oil can be found in these deserts - Great opportunities for renewable energy such as solar power. - Thar and Mojave deserts has attracted tourists.	- The extreme heat makes it difficult to work outside for very long. - High evaporation rates from irrigation canals and farmland. - Water supplies are limited, creating problems for the increasing number of people moving into the area. - Access through the desert is tricky as roads are difficult to build and maintain, and tarmac can melt in the heat.

Causes of Desertification

Desertification means the turning of semi-arid areas (or drylands) into deserts.	**Climate Change** Lower rainfall and rising temperatures have meant less water for plants.
Fuel Wood People rely on wood for fuel. This removal of trees causes the soil to be exposed.	**Overgrazing** Too many animals mean plants are eaten faster than they can grow back. Causing soil erosion.
Over-Cultivation If crops are grown in the same areas too often, nutrients in the soil will be used up causing soil erosion.	**Population Growth** A growing population puts pressure on the land leading to more deforestation, overgrazing and over-cultivation.

Strategies to reduce Desertification

- **Water management** - growing crops that don't need much water.
- **Tree Planting** - trees can act as windbreakers to protect the soil from wind and soil erosion.
- **Soil Management** - leaving areas of land to rest and recover lost nutrients.
- **Technology** – using less expensive, sustainable materials for people to maintain. i.e. sand fences, terraces to stabilise soil and solar cookers to reduce deforestation.

Year 10 Health and Social Care term 1

Health Care Services	Examples
Primary Care	GP's, dental care, optometry, community health
Secondary Care	referred to as 'hospital and community care', can either be planned (elective) care such as a cataract operation, or urgent and emergency care such as treatment for a fracture
Tertiary care	highly specialised treatment such as neurosurgery and transplants
Allied Health Professionals	Physiotherapy, occupational therapy, speech and language therapy and dieticians

Social Care Services	Examples
Services for children and young people	Foster care, residential care and youth work
Services for adults or children with specific needs	Residential care, respite care and domiciliary care
Services for older adults	Residential care and domiciliary care
Informal care	Relatives, friends and neighbours

Barriers to accessing care

The Barrier	Examples
Physical Barriers	Issues getting into and around the facilities
Sensory Barriers	Hearing and Visual Difficulties
Social, Cultural and Psychological barriers	Lack of awareness, differing cultural beliefs, social stigma and fear/loss of independence
Language barriers	Differing first language, language impairments
Geographical barriers	Distance of service provider and poor transports links
Intellectual barriers	Learning difficulties
Resource barriers for service provider	Staff shortages, lack of local funding and local high demand
Financial barriers	Charging for services, cost of transport and loss of income while accessing services

Key word	definition
Primary Care	The first point of contact in the healthcare system
Secondary care	Services provided by health professionals, you usually need to be referred to access this care.
Tertiary care	Services that need highly specialised treatment
Allied health professionals	Practitioners with specialised knowledge in preventing, diagnosing and treating a range of conditions and illnesses
Health care services	These services maintain or restore physical, mental, or emotional well-being
Social care services	Nonmedical services that support the social needs of individuals, e.g. the elderly,
Residential care	Care given to adults or children who stay in a residential setting rather than in their own home.
Respite care	taking a break from caring, while the person you care for is looked after by someone else
Domiciliary care	Services to support individuals in the comfort of their own home e.g. cooking a meal, helping someone get dressed or cleaning
Barrier to care	Something that limits, or prevents, someone accessing the care they need.

Summary 1954-60

By the early 1950s, slavery had been abolished and black Americans were equal to white Americans by law. However, black Americans were not actually treated as equal, as all over the USA black Americans lived in the worst areas and had access to the worst facilities. This was at its worst in the South, as most Southern states had a system of segregation which kept black and white communities separate. For example, local laws meant black Americans could not use the same toilets or restaurants as white people. Black Americans had the right to vote, but were stopped by a system that deliberately discriminated against them, by threats and by violence. Some black Americans in the South tried to improve their lives by joining the civil rights movement to campaign for equality. During the early stages of the civil rights movement, progress was made in education and the Montgomery Bus Boycott, with the culmination of the Civil Rights Act in 1957. However, with this progress being made, Southern opposition to civil rights grew as attempts were made to hinder the success of the movement.

Progress in Education	The Montgomery Bus Boycott
One of the biggest segregation issues in the South was education. The Brown V. Topeka case was significant in ruling against segregation in schools. However, with no timescale placed on desegregation, this was still a problem in Southern schools as seen in the case of the Little Rock Nine. As threats of violence increased, civil rights groups became aware of the power of the media to help their cause.	Rosa Parks was arrested after refusing to give up her bus seat for a white man. This sparked the bus boycott which lasted 381 and almost all black people in Montgomery took part. As head of the MIA, Martin Luther King became the voice of the campaign. He understood the importance of publicity, which was crucial for success. The boycott ended in 1956 with the Supreme Court decision to segregate public transport.

Enquiry Question: *What kind of change could African Americans see in the period 1954-1960?*

Key Figures

Emmet Till	A 14-year-old from Chicago who was murdered in 1955 by two white men whilst visiting relatives in Mississippi. His mother insisted on an open-casket at his funeral which gained much publicity for
Linda Brown	In 1951, the Browns and 12 other families went to court to fight for their black children to be able to attend the nearest school which was 'white' in the Brown V. Topeka case.
Rosa Parks	In 1955, Parks was arrested after refusing to give up her seat on a bus for a white person. This sparked the Montgomery Bus Boycott.
Martin Luther King	Civil Rights leader who came to prominence during the Montgom-

Challenge

Why did Emmett Till's mother decide to have an open viewing of his body at the funeral home?

Why did Rosa Parks become the figurehead of the Montgomery Bus Boycott?

What impact did the Little Rock 9 have on attitudes towards integration in the South?

1954 Brown v. Topeka case ruled AGAINST segregated education

1955 Murder of Emmett Till, a 14 year old African American, by the KKK

1955 Start of Montgomery Bus Boycott—December (Rosa Parks)

1956 Montgomery Bus Boycott ends. Segregation on public transport ruled unlawful

1956 The Southern Manifesto signed by Southern Politicians to encourage segregation

1957 President Eisenhower used National Guard to protect 9 black students at Little Rock High School

1957 Civil Rights Act: all people had right to vote and Federal Government to look for racial discrimination

1960 Civil Rights Act: aimed to protect voting rights of black citizens

TIMELINE OF THE DEVELOPMENT OF CIVIL RIGHTS

GCSE History

Development of Civil Rights Movement

Key Concepts

Federal	The central US government responsible for laws that govern the whole country.
State	All US states have their own governments and laws.
Supreme Court	The top court for the whole of the USA. It has the power to overrule state laws if necessary.
Literacy Test	Baffling tests designed to prevent black Americans from voting.
Senators	US politicians, members of the Senate.
Lynching	The murder of African Americans.

Other Resources

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

https://www.youtube.com/watch?v=S64zRnnn4Po

https://www.youtube.com/watch?v=JeE2WqlHFTc

SCAN ME

Key Vocabulary

Segregation	Separating groups due to their race e.g. separate housing, education, health care, or public transport for black and white people.
Discrimination	Treating people unfairly because of their race or religion.
Jim Crow Laws	'Black code' laws enforcing segregation, named after 'Jim Crow' (a lazy, stupid black character played by a white comedian).
Integration	Black and white people sharing facilities e.g. the same schools.
NAACP	(National Association for the Advancement of Coloured People). A pressure group founded in 1909 that focused on eliminating racial discrimination and on fighting for civil rights in the courts.
CORE	(Congress of Racial Equality). Established in 1942, this group used non-violent direct action protests e.g. the first group to use the tactic of sit-ins.
Non-violent direct action	Forms of protest that don't include violence e.g. boycotts, sit-ins.
Plessy V. Ferguson	'Separate but equal' - A law of 1896 said segregation was allowed if conditions for blacks and whites were equal
Desegregation	Removal of the policy of segregation
WPC	(Women's Political Council) set up in Montgomery in 1946 to fight discrimination.
MIA	(Montgomery Improvement Association) led by Martin Luther King, set up to improve the lives of black people in Montgomery and to continue the bus boycott.
Boycott	Refusal to use a service if you believe it is doing something wrong (e.g. discriminating against black people on buses).
Dixiecrats	Democratic Party senators from Southern States who opposed black voting rights.
Ku Klux Klan (KKK)	(Ku Klux Klan) A secret society of white people in the South who believed in white supremacy and used violence against black people (and other minority groups).
WCC	(White Citizens' Council) petitioned and campaigned against desegregation.
Southern Manifesto	A document written by Congress in 1956 opposing racial integration of public places.
SCLC	(Southern Christian Leadership Council) set up church-based protests, Martin Luther King was one of its leaders.

22

A visual identity gives customers a feeling of the brand, product or service. It helps to **visually communicate** the values and personality of the brand with audiences or customers. The visual identity helps **establish a brand**, make it stand out and be **recognised** and **develop brand loyalty**.

When creating a visual identity you need to consider the following components: **logo**, **brand name** and **slogan or strap line**. See illustration below.

A visual identity should reflect **the type of business or organisation it represents**. It should help to **communicate the values** and core principles of the brand.

Much like colour, different typefaces (fonts) evoke different emotions. Sans serif fonts can project modernity and simplicity, while serif fonts convey stability and tradition. Script fonts offer elegance, while display fonts portray a more playful or hand-made feeling. The font you choose for a logo can add or detract from the credibility of your brand. (See the differences between the examples shown below.)

The Kids Zone logo (below) creates a visual identity that communicates feelings of fun, activity and creativity. The use of bright colours, playful font and decorative splat would be appealing to young children.

The Royal Swan logo (below) creates a visual identity that shows an elegance and luxury, as suggested by the gold. The contrasting dark blue colour is chosen to provide reassurance and trust in the brand. It is simple and elegant but also easy to remember. The traditional font communicates a traditional atmosphere.

The elements of visual identity include **typography**, **graphics**, **colour palette** and **layout/complexity**.

Key vocab

Word	Definition
Typography	The style of text used.
Graphics	This includes photos, images, illustrations, **shapes** and **symbols**.
Colour palette	The particular group of colours or colour scheme that is to be used across all products.
Layout and complexity	Layouts may be simple or complex. You will need to consider the audience and purpose of the product to decide which is appropriate.

More info can be found here:

OCR Creative iMedia Levels 1/2 J834 (R093, R094), PG Online Limited, 2022. Pages 67-69

GCSE Media – Media Language

eduqas

KEY TERMINOLOGY:

Denotation: actual/literal meaning e.g. a candle.

Connotation: deeper meanings e.g. a candle might connote hope or light, or have religious connotations.

Codes and conventions: the elements of media language that usually occur in particular forms (e.g. magazines or adverts) or genres (e.g. sitcom).

Narrative: how stories are structured and communicated.

Genre: the type or category of product (e.g. crime, sitcom).

Intertextuality: where a media product refers to another text to communicate meaning to the audience.

KEY CONTENT:

The various forms of media language used to create and communicate meanings in media products, for example:
Visual codes: elements that relate to the look of a product, e.g. mise-en-scène, colour palette, layout and design.

Technical codes: e.g. camera shots/ angles, editing.

Audio codes: e.g. non-diegetic music, effects, dialogue.

Language codes: written or spoken words.

✍ **Apply it... analyse how these elements of media language are used in the set products e.g.** *the red, white and black colour palette on the set GQ cover connotes masculine strength and power to appeal to the target audience*.

KEY CONTENT:

How choice (selection, combination and exclusion) of elements of media language influences meaning in media products, for example:

- How the selection and combination of camera shots **creates narrative** in the *set television episodes* or *music videos*.

- How the written text anchors meanings in the images on the *set newspaper front pages* to **portray aspects of reality**

- What has been excluded from the *set print advertisements*— and how the **point of view** might be different if alternative elements had been included.

- How the combination of design elements, images and cover lines **conveys messages and values** on the *set magazine front covers*.

✍ **Apply it... analyse how the choices producers make about media language communicates meanings in the set products.**
E.g. *the combination of images and headline on the front page of The Sun (for assessment from 2021) conveys patriotic values and communicates a point of view that MPs should vote for the Brexit Bill*. **Give examples to support this point.**

WHERE WILL I NEED TO STUDY/ APPLY MEDIA LANGUAGE?

COMPONENT 1: Section A
Question 1 will require analysis of one of the set products detailed on Page 11 of the Specification: magazine front covers , newspaper front pages, film posters and print adverts.

COMPONENT 2: Section A
Question 1 will require analysis of media language or representation in an extract from the set television crime drama or sitcom.

COMPONENT 2: Section B
Question 3 will require analysis of media language or representation **in the set music products detailed on page 19 of the Specification**: music videos and online media.

COMPONENT 3
Learners will be assessed on their ability to use media language to communicate meanings in the production work (Non-Exam Assessment).

KEY CONTENT:

Codes and conventions of media language: how they develop and become established as 'styles' or genres, for example:
How the conventions of a genre (e.g. crime drama or sitcom) have developed and solidified.

How they may vary over time, for example:
How the conventions of a form (e.g. print advertising) have changed, due to new technologies and changing social/ cultural contexts.

✍ **Apply it... analyse how the contemporary set print advert, film poster, television programme and music videos show developments from the older/ historical set products you have studied.**
E.g. *The Spectre poster uses digital technology to construct an enigmatic layered main image in contrast to the montage of drawn images depicting narrative scenes in the historical poster*.

KEY CONTENT:

Intertextuality, including how inter-relationships between media products can influence meaning:
Several set products use intertextuality, for example the set music videos by Katy Perry and Taylor Swift are constructed as 'mini-films' and show the influence of other texts.

✍ **Apply it... identify references to other texts in the set products you have studied and think about how these communicate meanings.**
E.g. *Roar includes intertextual references to the well known 1969 film, The Jungle Book, in the use of visual codes and elements of narrative. These familiar references can communicate meanings (e.g. about a human 'taming' the jungle) and create humour*.

THEORETICAL PERSPECTIVES AND CONTEXTS:

GENRE, including:
Principles of repetition and variation: products usually include typical genre conventions that audiences recognise, and also different elements to engage the audience/ keep the genre 'fresh'.

The dynamic nature of genre: genres are not 'set in stone', they change and develop over time.

Hybridity (combining elements of two or more genres in a product) and **intertextuality** provide further variation and offer something 'new' to engage audiences.

✍ **Apply it... consider how these ideas apply to the set products you have studied for Component 2.**

NARRATIVE theories:
Propp's theory must be studied: the key character types (hero, villain, 'princess', father, donor, helper, dispatcher, false hero) and their role in the stages of the narrative.

✍ **Apply it... consider how Propp's character types could apply to the set products you have studied.**

Other theories, such as Todorov's theory (equilibrium, disruption, resolution), Levi-Strauss' Binary Oppositions or Barthes' Action and Enigma codes may also be studied.

CONTEXTS: Historical, Social, Cultural, Political:
How the media language in the set products reflects the contexts of production in terms of:

- themes, values, messages, viewpoints

- genres, styles, technologies, media producers.

APPLYING MEDIA LANGUAGE: PRACTICAL TASKS

Art skills not important!

1. Choose a different song by Katy Perry or Taylor Swift: **storyboard 20 shots for a new music video**. Include some performance and narrative to reflect conventions. Think about the range of camera shots and the mise-en-scène to communicate the meanings in the lyrics to your audience.

2. **Design a front cover for a new magazine** in a genre of your choice. Sketch the layout and design, paying close attention to the colour palette, the font style and the main image.
Write 5 cover lines, aiming to communicate messages and use language codes.

Instruments/Line Up

Typical Band Line Up
Vocals/Backing Vocals
Drum kit
Electric Guitar
Bass Guitar
Keyboard/Piano
Synthesiser
Bhangra – Dhol, Drum Machine,
Synthesiser, Tumbi, Sitar

Texture

The typical of rock and pop music texture is melody and accompaniment.

Rhythm/Beat lengths

- Emphasising beats 1 and 3
- Syncopation – off beat rhythms
- Minim – 2   Crotchet – 1
- Quaver – 1/2   Semiquaver – 1/4

Melody

The melody lines tend to be:
- Conjunct – moving in step
- Repetitive
- Syllabic – each syllable has one note
- Melimsa – dragging lots of notes over one syllable

Popular Music

- Popular music covers music from 1960s – present day in a popular style. You will look at Rock, Pop, Bhangra and Fusions.
- You will listen to a range of music and analyse the musical elements, instruments and technological effects used.

AoS 4

Popular Music

Technological Effects

- Reverb – lots of repetitions of one sound after each other
- Echo – a single repeated sound
- Panning – the distribution of sound in the stereo field
- Vocoder – making the voice sound robotic
- Autotune – making the voice sound in tune

Harmony

- Based on simple and repeating chord patterns.
- Mainly using chords I, IV, V, VII
- Use off riffs (repeating bass line patterns)

Structure

The songs tend to be in verse-chorus structure
- Verse – repeated section but with new lyrics
- Chorus – the main section of the song that is repeated
- Intro – Introduction/starting section
- Outro – Ending section
- Bridge – A contrasting section
- Middle 8 - 8 bar section in the middle of a song
- Loops – repeating patterns
- Sampling – taking a sample from another song and using it in another recording

Tempo and Time Signature

The tempo could be:
- Adagio (slow)
- Andante/Moderato (medium)
- Allegro (Fast

The time signature (beats in a bar) is generally in 4/4 (four beats in a bar)

Dynamics

Most songs are mezzo-forte (medium loud) in the verse whilst the choruses are forte (loud).

Tonality

Major – Uplifting/happy/bright tone
Minor – Sad/sombre tone

Careers Education

Key word	Definition
Qualification	Something that makes a person fit for an activity or job. This normally involves the completed of an award or exam that is graded.
Skill	The power or ability to perform a task well, especially because of training/practice
Quality	A feature that makes a person or thing what it is
Career	the work a person chooses to do through life
Job	a regular position for which a person is paid to do particular duties
Employment	work done for pay; job
Sixth Form	Two final years at a school to study A-Level courses (and some BTEC courses).
College	A place where you can focus on mostly vocational courses (training you for a specific job)
Respect	To express honour or esteem towards, treating others how you wish to be treated
Psychometric testing	A test that many employers use to work out whether your personality fits with what they are looking for – usually part of a job interview.
Armed services	One of your post-sixteen options – the army, navy or air force.
Curriculum Vitae	A written overview of your skills, qualifications and experience that employers will ask to see.

Useful websites for extended reading:
https://icould.com/
http://www.wiltshire.ac.uk/
https://www.bbc.com/education/topics/zsnfr82/resources/1

Key Content:

- Establish and identify your own strengths and weaknesses, interests, skills, and qualities
- Develop a greater awareness of the future career options available to you
- Become familiar with different types of work, and pathways to get through life, education and work
- Think about the post-sixteen options available to you, and learn about different ways to get advice and support with managing this decision making process
- Discuss the benefits and importance of ambition and aspiration in regards to the future
- If you need further advice about the options process and careers email Mrs Lynch our careers support worker on alynch@jogschool.org
- You can make an appointment for a careers interview by emailing Mrs Lynch on the address above
- Take a look at the following websites for further careers advice: www.eclips-online.co.uk (the password is ba14 9eh)
- This website is also helpful: www.careerpilot.org.uk
- If you are interested in an apprenticeship then have a look at the following website: www.gov.uk/apply-apprenticeship
- Register yourself for the apprenticeship site above to keep up to date with opportunities
- If you are interested in the armed services then Mrs Lynch can put you in touch with the army/navy/air force careers team.
- Start looking at sixth forms around us if you are interested in A-level or specific BTEC courses. Find out when open evenings are.
- Look at the Wiltshire, Bath and Swindon college websites to find out when their open days are the sort of courses they have.
- Remember that Trowbridge is not the epicentre of everything – you can do a courses at a different college and sixth form.

Careers education: work experience (WEX)

All of year ten will take part in WEX in the summer term. It gives young people a chance to build their self-confidence and start to plan their own career path. It gives young people valuable skills, qualities and experience that can be referred to on a CV or at an interview. It also gives young people the opportunity to find out about working life and specific careers or jobs that they might be interested in.

Your WEX placement is probably your first real step into the world of work, So it's understandable that you might feel a little nervous thinking and preparing for this. The key to combating those nerves is start preparing for it now.

It is important to start considering what you would like to do for your WEX over the next few weeks. Start talking to people that you know (teachers, family, friends, neighbours, etc.) to start to gain some ideas about possible placements. You might know someone that could offer you some WEX. You could also start to consider approaching employers and asking them whether they take WEX placements in the summer term.

A key part of finding a work experience placement is contacting employers via an email or writing a letter. You could also consider phoning employers as well. In PSHE lessons we will help you to write these, but the ground work must be done by you. If you are struggling with this you could make an appointment to see Mrs Lynch, our careers adviser, by emailing her at alynch@jogschool.org

Useful websites:

https://www.careerpilot.org.uk/information/a-job-or-career/work-experience-what-s-in-it-for-me

https://targetcareers.co.uk/careers-advice/skills-and-experience/388-work-experience-for-school-students-what-you-need-and-how-to-get-it

https://www.myworldofwork.co.uk/work-experience-0

Remember to always refer to your Start profile that you registered for last year https://www.startprofile.com/

Work experience letter template

[Your name]

[Address]

[Postcode]

[Date]

[Employer's name]

[Full address]

[Postcode]

Dear Sir/Madam [or name],

I am a [year group] student from [school name], studying [list of subjects].

I'd like to enquire about a potential work experience placement at [company name], which I will be available to carry out for [amount of time] from [start date] to [end date].

I'm keen on gaining some practical work experience in [chosen field of work], because [reasoning for pursuing a placement with this specific company and field].

I'm a [relevant skills and attributes], which can be shown in my [real-life examples that demonstrate your skills].

In my spare time, I like to [list relevant hobbies and interests], and I've also had some experience in/am a member of [list any groups/clubs/other work experience].

As an enthusiastic student with a keen interest in what your organisation does, as well as a passion to progress within this industry, I would be very grateful to be considered for an opportunity at [company name].

I look forward to hearing from you soon.

Yours [sincerely/faithfully]

[Your name]

When writing a letter to ask about a WEX placement, it is important for it to look professional. Consider using this template for a letter opposite, which could also be adapted to send in an email. Remember to:

- Write a letter/email following the professional format opposite.
- Once you have typed a letter/email it is important to read through it and check for any SPAG errors.
- Make a good impression. You never get a second chance to make a good impression.
- Include the dates and timings of the work experience.
- Explain why you would like a placement at their company – relate this to your future careers ideas.
- Never include any hobbies that might be considered weird.
- Show your letter to someone (your PSHE teacher maybe) before sending it to an employer. You can then use this letter again to send to other employers – make sure you change the company name!
- Include the right name and address of the person you are sending it to.
- Sell yourself! Remember there will be other young people in the same position as you, so an employer may be receiving quite a few letters/emails.
-

Ionic bonding:

Ionic bonding occurs between a metal and a non-metal. Metals lose electrons to become positively charged. Opposite charges are attracted by electrostatic forces – an ionic bond.
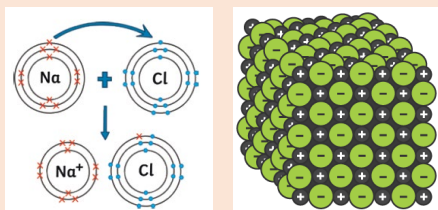

Ionic compounds form structures called giant lattices. There are strong electrostatic forces of attraction that act in all directions and act between the oppositely charged ions that make up the giant ionic lattice.

Properties of ionic compounds:
•High melting point – lots of energy needed to overcome the electrostatic forces of attraction
•High boiling point
•Cannot conduct electricity in a solid as the ions are not free to move
•Ionic compounds, when molten on in solution, can conduct electricity as the ions are free to move and carry the electrical current.

Metallic bonding:
Metallic bonding occurs between metals only. Positive metal ions are surrounded by a sea of delocalised electrons. The ions are tightly packed and arranged in rows. There are strong electrostatic forces of attraction between the positive metal ions and negatively charged electrons.
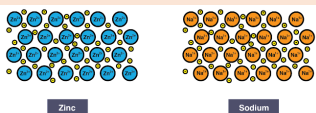
Covalent bonding:

Covalent bonding is the sharing of a pair of electrons between atoms to gain a full outer shell. This occurs between non-metals only.

Dot and cross diagrams are useful to show the bonding in simple molecules.

You should know how to do the dot and cross diagrams for chlorine, oxygen, nitrogen, hydrogen chloride and methane.
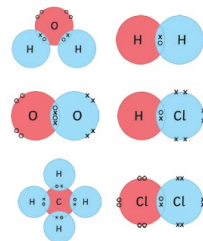
Properties of covalent molecules:

Simple covalent structures have low melting and boiling points because of the weak intermolecular forces that hold the molecules together. They do not conduct electricity as they do not have any free delocalised electrons.

Alloys:
Pure metals are too soft for many uses and are often mixed with other metals to make alloys. The mixture of the metals introduces different sized metal atoms. This distorts the layers and prevents them from sliding over one another. This makes it harder for alloys to be bent and shaped like pure metals.

Diamond:
• Each carbon atom is bonded to four other carbon atoms, making diamond very strong.
• Diamond has a high melting and boiling point. Large amounts of energy are needed to break the strong covalent bonds between each carbon atom.
• Diamond does not conduct electricity because it has no free electrons

Word	Definition
Bond	A chemical bond is a lasting attraction between atoms, ions or molecules that enables the formation of chemical compounds.
Metal	consist of giant structures of atoms arranged in a regular pattern. The electrons from the outer shells of the metal atoms are delocalised , and are free to move through the whole structure.
Alloy	a mixture of two or more elements , where at least one element is a metal
Delocalised electrons	The electrons from the outer shells of the metal atoms are delocalised , and are free to move through the whole structure

Graphite
Made up of layers of carbon arranged in hexagons. Each carbon is bonded to three other carbons and has one free delocalised electron that is able to move between the layers. This allows it to conduct electricity. The layers are held together by weak intermolecular forces. The layers can slide over each other easily as there are covalent bonds between the layers
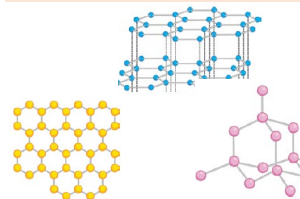
Combined science HT – chemistry – bonding

Circuit symbols

cell		closed switch	—o—o—	fuse	
resistor		ammeter	(A)	LDR	
battery		voltmeter	(V)	LED	
variable resistor		bulb	—⊗—	thermistor	
open switch	—o⟋o—	diode			

Equations and Maths

Equations
Charge:　　　$Q = It$
Potential difference: $V = IR$
Energy transferred: $E = Pt$
Energy transferred: $E = QV$
Power: $P = VI$
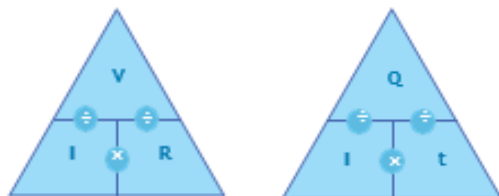Power: $P = I2R$

Math's
$1kW = 1000W$
$0.5kW = 500W$

Combined science HT – physics – electricity

Charge

Electric current is the flow of electric charge. It only flows when the circuit is complete.
The charge is the current flowing past a point in a given time. Charge is measured in coulombs (C).

Required Practical's

Investigating Resistance in a Wire
Independent variable: length of the wire.
Dependent variable: resistance.
Control variables: type of metal, diameter of the wire.
Conclusion: As the length of the wire increases, the resistance of the wire also increases.

Investigating Series and Parallel Circuits with Resistors Independent variable: circuit type (series, parallel).
Dependent variable: resistance.
Control variables: number of resistors, type of power source.
Conclusion: Adding resistors in series increases the total resistance of the circuit. In a parallel circuit, the more resistors you add, the smaller the resistance.

Investigating I-V Relationships in Circuits
(Using a filament bulb, ohmic conductor, diode.)
Independent variable: potential difference/volts (V).
Dependent variable: current (A).
Control variable: number of components (e.g. 1 filament bulb, 1 resistor), type of power source.

Set up the circuits as shown below and measure the current and the potential difference.
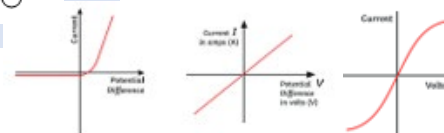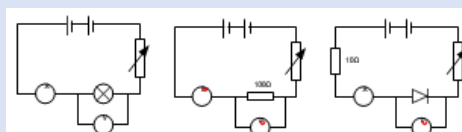
Word	Definition
Current	The flow of electrical charge
Potential Difference	The push of electrical charge
Resistance	Slows down the flow of electrical charge
Power	Time rate of doing work or delivering energy, expressible as the amount of work done W, or energy transferred, divided by the time interval
Energy transferred	Amount of energy moved from one place to another.
Efficiency	The amount of energy transfer into useful work.

Graphs of I-V Characteristics for Components in a Circuit
1. Ohmic conductor: the current is directly proportional to the potential difference - it is a straight line (at a constant temperature).

2. Filament lamp: as the current increases, so does the temperature. This makes it harder for the current to flow. The graph becomes less steep.

3. Diode: current only flows in one direction. The resistance is very high in the other direction which means no current can flow.

Adaptations

Structural adaptations: features of the organisms' body, e.g. colour for camouflage

Behavioural adaptations: how the organism behaves e.g. migration to a warmer climate during colder seasons

Functional adaptations: the way the physiological processes work in the organism e.g. lower metabolism during hibernation to preserve energy

A plant or animal will not physically change to adapt in its lifetime. Instead, there is a natural variation within the species and only the organisms whose features are more advantageous in the environment survive. The survivors then go on to reproduce and pass on their features to some of their offspring. The offspring inherit these advantageous features and are better equipped to survive. Charles Darwin described this as **'survival of the fittest'**.

Competition:

Species will compete with one another and also within their own species to survive and reproduce.

Mutualism occurs when both species benefit from a relationship.

Parasitism occurs when a parasite only benefits from living on the host.

Animals compete for resources such as food, water and space/shelter. They may also compete within their own species for mates.

Plants compete for resources including light, water, space and minerals.

Word	Definition
Adaptation	Adaptations are specific features of an organism which enable them to survive in the conditions of their habitat.
Competition	the rivalry between or among living things for territory, resources, goods, mates, etc.
Food chain	a list of organisms in a habitat that shows their feeding relationship
Nutrient cycle	a system where energy and matter are transferred between living organisms and non-living parts of the environment

Required practical: quadrats

Quadrats can be used to measure the frequency of an organism in a given area e.g. the school field. You can count the individual organism or estimate the percentage cover. Quadrats should always be placed randomly.

Ways to maintain ecosystems and biodiversity:

- Breeding programmes
- Conservation programmes to protect and preserve specialised ecosystems and habitats
- Reintroduction of hedgerows and field margins on agricultural land
- Sustainable forestry programmes help to manage woodlands and reduce the deforestation to a sustainable rate
- Encouraging recycling and reusing products and packaging to reduce the household waste.

Deforestation and land use:

Humans use land for buildings, quarrying, mining, agriculture and landfill. As the human population increases and we take more land, there is less space for other organisms to live.

Deforestation (to use wood as a fuel/material or to clear space for other uses) destroys habitats where other organisms live.

Peat bogs are produced when decomposition occurs over a very long time. Peat stores a lot of carbon and can be extracted for use by gardeners or as an energy source. Burning peat releases a lot of carbon dioxide into the atmosphere which contributes to the greenhouse effect.

Trees absorb carbon dioxide for photosynthesis, so as they are cut down and removed, less CO_2 is taken from the atmosphere. Furthermore, when they are burned, they release the CO_2 back into the atmosphere.

Combined science HT – biology – ecology

Verbs key: past, present, future

Los problemas en el hotel - problems in the hotel

había insectos/cucarachas en la cama - there were insects / cockroaches in the bed
el aire acondicionado estaba roto - the air conditioning was broken
la luz no funcionaba - the light didn't work
el aseo / el baño / la ducha estaba sucio/a - the toilet/bath/shower was dirty
no había - there wasn't/weren't
el hotel estaba completo - the hotel was full
estaba cerca de una calle de mucho tráfico, por eso no dormí mucho – it was close to a street with a lot of traffic, therefore I didn't sleep much
fue un desastre total - it was a total disaster
por la noche había mucho ruido - at night there was a lot of noise
decidimos cambiar de hotel - we decided to change hotels

¡El subjuntivo! - The subjunctive!

Si tuviera la oportunidad, iría a - If I had the opportunity, I would go to
Si tuviera mucho dinero, pasaría mis vacaciones en – If I had lots of money I would spend my holidays in
Si pudiera, visitaría – If I could, I would visit
Si ganara la lotería, viajaría alrededor del mundo – If I won the lottery, I would travel around the world
Cuando tenga veinte años – when I'm twenty years old
Cuando sea mayor – when I'm older

Other higher level constructions

acabar de + infinitive – to have just done something eg *acabo de volver de mis vacaciones en Italia* – I have just returned from my holiday in Italy
antes de + infinitive – before doing something – eg *antes de salir* – before going out
después de + infinitive – after doing something – eg *después de comer* – after eating
¡Qué rico! – How delicious   **¡Qué desastre!** – What a disaster   **¡Qué suerte!** – How lucky   **¡Qué ilusión!** – How exciting   **al llegar** – on arriving

Conectivos – connectives
      a causa de - because of   **gracias a** – thanks to
debido a – due to   **aunque** – although   **ya que** – because / since
sin embargo – however   **no obstante** – however   **por eso** – therefore
por lo tanto – therefore   **según** – according to   **siempre** – always
a menudo – often   **durante el día** – during the day   **por la noche** – at night
en cambio – on the other hand

Comparatives – más ADJECTIVE **que** – more ADJ than**; menos** ADJECTIVE **que** – less ADJ than**; tan** ADJECTIVE **como** – as ADJ as**. eg España es más fascinante que Francia** – Spain is more fascinating than France. **Grecia era menos caro que Suiza** – Greece was less expensive than Switzerland**;   la Torre Eiffel va a ser tan divertido como la Torre de Pisa** – the Eiffel Tower is going to be as fun as the Leaning Tower of Pisa.

Lo que más/menos me gustó /me gusta / me va a gustar era / es / va a ser - What I liked / like / am going to like the most/least was / is / is going to be
Lo mejor/peor era / es / va a ser - The best/worst thing was / is / is going to be
Lo único malo era / es / va a ser - The only bad thing was / is / is going to be
Me interesó / me interesa / me va a interesar muy poco la ciudad I wasn't / am not / am not going to be very interested in the city
Me impresionó / me impresiona / me va a impresionar la magnífica arquitectura - I was / am / am going to be impressed by the magnificent architecture
La historia y la cultura son las razones principales para volver a - The history and culture are the main reasons to go back to
Vale la pena visitar - It's worth visiting
Había un guía que explicaba todo - There was a guide who explained everything
Esta experiencia, desde un punto de vista cultural, fue / es / va a ser fascinante -This experience, from a cultural point of view, was / is / is going to be fascinating

había / hay / va a haber – there was / there is / there's going to be
tenía / tiene / va a tener – it had / it has / it's going to have
unas vistas preciosas de – lovely views of
unas instalaciones deportivas – sports facilities
la vida nocturna para los jóvenes – nightlife for young people
los monumentos más emblemáticos / las ruinas de / la playa de – the most emblematic monuments / the ruins of / the beach of
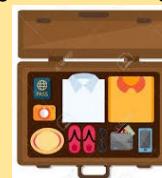**una piscina impresionante** – an impressive pool
mucho ruido – lots of noise   **mucha gente** – lots of people
comida de todo el mundo – food from around the world
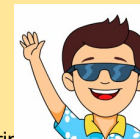**todo lo necesario para unas vacaciones inolvidables** – everything necessary for an unforgettable holiday

nunca había / he visitado España - I had / have never visited Spain
nunca había / he ido al extranjero - I had / have never been abroad
fui / voy / voy a ir de excursión – I went / go / am going to go on a daytrip
conocí / conozco / voy a conocer a mucha gente nueva – I met / meet / am going to meet lots of new people
esquié / esquío / voy a esquiar – I skied / I ski / I am going to ski
disfruté / disfruto / voy a disfrutar de unas vistas esplendidas – I enjoyed / enjoy / am going to enjoy some splendid views
di / doy / voy a dar un paseo – I went / I go / I'm going to go for a walk
subí / subo / voy a subir una torre – I went up / I go up / I am going to go up a tower
cogí / cojo / voy a coger un autobús turístico - I caught / I catch / I'm going to catch a tourist bus
bailé / bailo / voy a bailar – I danced / I dance / I'm going to dance
tuve que / tengo que / voy a tener que compartir un dormitorio con – I had to / I have to / I'm going to have to share a room with

Quisiera volver a Grecia una vez más – I'd like to return to Greece once more

Academic Language
Follow the path from left to right to explore new vocabulary

To **disseminate** is to spread information widely.

disseminate

However an academic idea is presented, you should always aim for it to be **tangible** because this word means clear and definite.

The information could be made clear in the form of a **vignette**.

You might find there is a **paradigm** or pattern of ideas or language in the text or information.

A **dichotomy** can make a point by contrasting opposing ideas. If the idea is developed to be directly opposing or incompatible we can say its **antithetical.**

tangible

vignette

paradigm

antithetical

elucidate

dichotomy

divergent

A **vignette** is a brief description or episode used to **elucidate** a concept.

This would **elucidate** a concept because this word means to make a point clear.

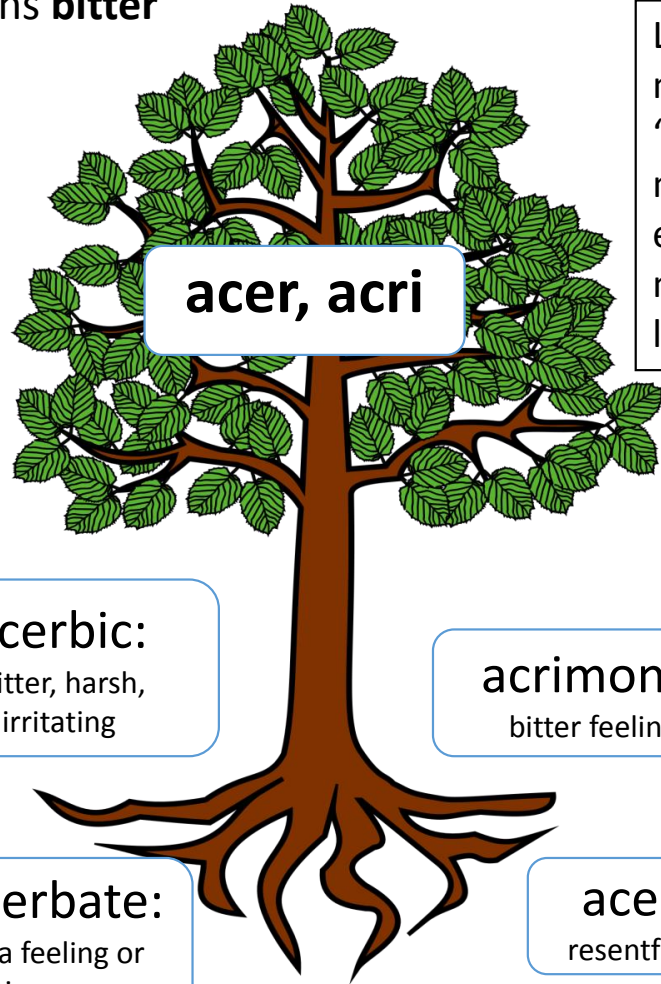Often **paradigms** are a **dichotomy** which means opposites: light & dark or freedom & oppression.

An idea that is the **antithetical** of something, could also be described as a **divergent** interpretation because this means contrasting.
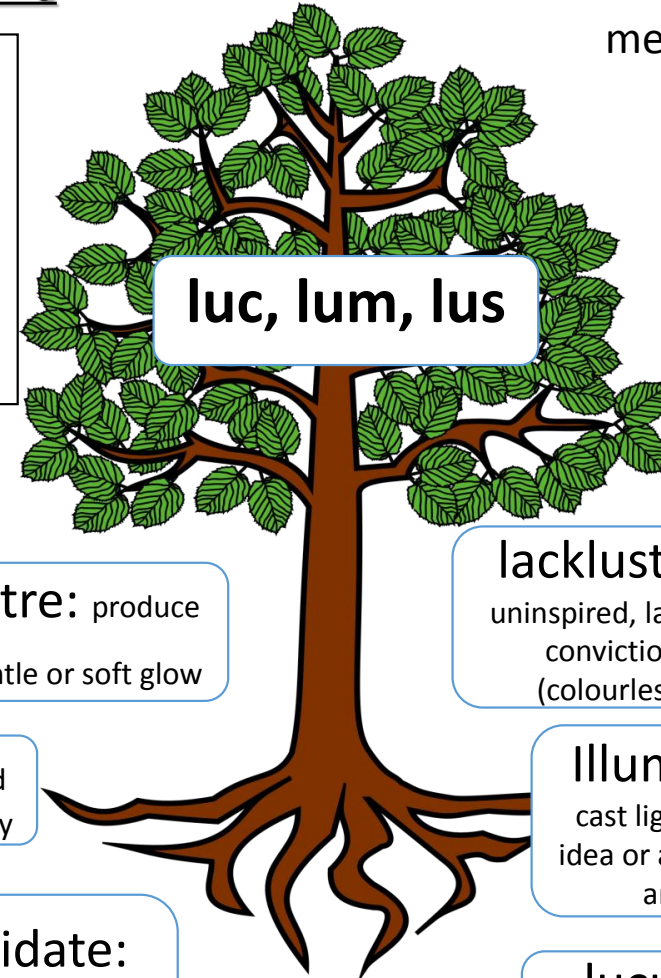
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Root word families

The root 'acer' or 'acri' means **bitter**

The root 'luc' or 'lum' means **light**

Learning basic roots and their meanings, will help you to build a 'toolkit' for working out the meaning of unfamiliar language. explore how the roots shape the meaning of new and familiar language.

acer, acri

luc, lum, lus

acerbic: bitter, harsh, irritating

acrimony: bitter feeling

exacerbate: make a feeling or situation worse

acerbate: resentful, irritated

acrid: stingily bitter

lustre: produce a gentle or soft glow

lacklustre: uninspired, lacking conviction (colourless)

lucid: think and communicate clearly

Illuminate: cast light upon an idea or actually light an area

elucidate: make something clear (shed light on an idea)

pellucid: clear and pure or easily understood

luculent: clearly expressed ideas

LAST PAGE