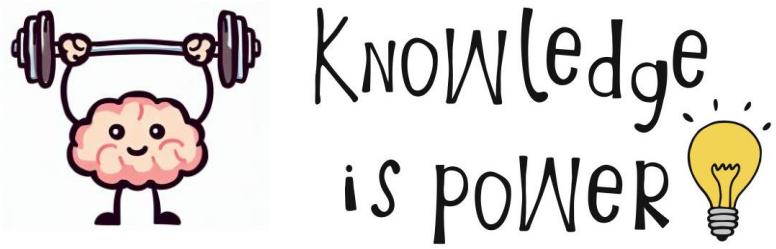
Dorset Studio School
LAND & ENVIRONMENT

Knowledge Organiser Booklet

Year 9 Autumn Half Term 1



Name:_____ Tutor group:_____

Contents

Education Endowment Foundation

+5 months

Research carried out by the Education Endowment Foundation proved that: Homework has a positive impact on average of + 5 months, particularly with pupils in secondary schools.

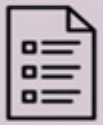
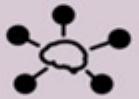
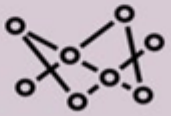
Home learning timetable

The table below details which days each subject will set home learning on each week. Students will have one week to complete home learning tasks for each subject.

Group	Monday	Tuesday	Wednesday	Thursday	Friday
9N	Humanities Physics	Chemistry English	Land based Animal Care	Maths Biology	
9E	English	Chemistry Physics	Land based	Maths Humanities	Biology Animal Care
9W	Humanities L & E	English Biology	Animal Care	Maths Physics	Chemistry

These knowledge organisers have been created by your teachers to support your learning both in class and for home learning. They are also a valuable revision tool for you to use independently when preparing for assessments. It is important that you make good use of your knowledge organisers by learning how to use them in different ways.

How to use a knowledge organiser – step by step guide

	Look, Cover, Write, Check	Definitions of Key Words	Flash Cards	Self Quizzing	Mind Maps	Paired Retrieval
Step 1	Look at and study a specific area of your KO. 	Write down the key words and definitions. 	Use your KO to condense and write down key facts or information onto flash cards. 	Use your KO to create a mini quiz. Write down your questions using your KO. 	Create a mind map with all the information you can remember from your KO. 	Ask a friend or family member to have the KO or flash cards in their hands. 
Step 2	Cover or flip the KO over and write down everything you can remember. 	Try not to use your KO to help you. 	Add pictures to help support. Then self-quiz using the flash cards. You could write questions on one side, and answers on the other! 	Answer the questions and remember to use full sentences. 	Check your KO to see if there are any mistakes on your mind map. 	They can test you by asking you questions on different sections of your KO. 
Step 3	Check what you have written down. Correct any mistakes in green pen and add anything you have missed. Repeat. 	Use your green pen to check your work. 	Ask a friend or family member to quiz you on the knowledge. 	Ask a friend or family member to quiz you using the questions. 	Try to make connections, linking the information together. 	Write down your answers, 

Key Terms	Definition
Morphology	The study of the internal structure of words. It is a Greek word that means 'to study shape'.
Etymology	The study of the origin of words and the way in which their meanings have changed throughout history.
Prometheus	An Ancient Greek God. He represents the quest for scientific knowledge and the risk of over-reaching or unintended consequences.
Society	People, living together in a more or less ordered community.
Inference	The process of arriving at a certain conclusion using reasoning or evidence, which makes them more than just assumptions.
Patriarchal Society	A patriarchal society consists of a male-dominated power structure throughout society and in individual relationships. Power is related to male privilege.
Tragedy	A play dealing with tragic events and having an unhappy ending, especially one concerning the downfall of the main character
Hamartia	A fatal flaw in the main character of a play which leads to their downfall.
Hubris	Excessive pride, arrogance and self-confidence.
Catharsis	The process of releasing strong or repressed emotions. It leads to a feeling of renewal and relief.

SCAN ME

Gaia Mother of Earth

Uranus Father of Sky

Gaia & Uranus' Children
The Titans

Atlas	Oceanus	Rhea	Cronus	Epimetheus	Prometheus
Titan God of Strength	Titan God of the Ocean	Titan God of Motherhood	Titan God of Time	Titan God of Afterthought	The God of Fire

Rhea & Cronus' Children
The Olympians

Demeter	Zeus	Hera	Hades	Hestia	Poseidon	Aphrodite
God of Agriculture	God of Sky	God of Marriage	God of Underworld	God of Home	God of Ocean	God of Love

Zeus' Children - Gods

Persephone	Athena	Ares	Dionysus	Hermes	Apollo	Artemis	Hercules	Perseus
Goddess of Underworld	Goddess of Wisdom	God of War	God of Wine	God of Messenger	God of Music	Goddess of Hunt	God of Strength	God of Killing

Did you know...

The Olympians of the Marvel Universe, even those called by their Roman names, are based on the Gods of Greek Mythology!

SCAN ME

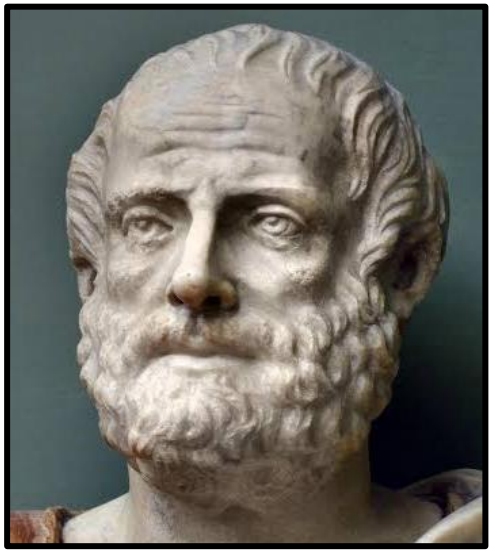
When Prometheus stole fire from heaven, Zeus, the king of the gods, took vengeance by presenting Pandora to Prometheus' brother Epimetheus. Pandora opened a jar left in her care containing sickness, death and many other evils which were then released into the world.

Key Prefixes

Geo	Earth
Bio	Life
Psych	Mind
Path	Emotion
Morph	Shape
Tech	Skill/ability
Tele	Covering distance
Micro	Small
Therm	Heat
Photo	Light

Aristotle

This is the same guy we talk about in rhetorical study in Y8 and Y9!



Some of the things the Ancient Greeks gave us:

Democracy
History
Philosophy
Maths
Theatre

SCAN ME

Key Suffixes

ology	The study of
graphy	To write or draw
phone	Sound
phobia	The fear of
ist / ician	One who does
tion	Act or process of doing something
crat	To rule
omy	To have knowledge of
ism	An act or belief
meter	A measurement

Plot structure of a typical tragedy

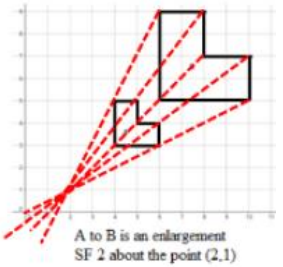
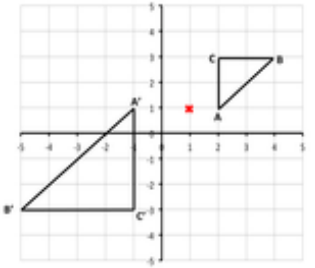
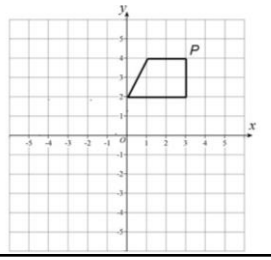
Hero starts out as loved but they feel unfulfilled due to a fatal flaw in their character	Hero begins to be tempted to follow their desires.	Hero commits to their goal. Things go well but they are no longer seen as a hero	Hero begins to get frustrated and makes poor decisions. They are now hated	Former hero loses everything, often including their life.	Everyone else feels cathartic that things are back to how they should be.

9N: Indices	Year 9 Maths - Autumn 1- 1.0	
Topic/Skill	**Definition/Tips**	**Example**
1. Square Number	The number you get when you multiply a number by itself.	1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225… $9^2 = 9 \times 9 = 81$
2. Square Root	The reverse process of squaring a number.	$\sqrt{36} =$ because $6 \times 6 = 36$
3. Solutions to $x^2 =$ ….	Equations involving squares have two solutions, one positive and one negative.	Solve $x^2 = 25$ $x = 5 \; or \; x = -5$ This can also be written as $x = \pm 5$
4. Cube Number	The number you get when you multiply a number by itself and itself again.	1, 8, 27, 64, 125… $2^3 = 2 \times 2 \times 2 = 8$
5. Cube Root	The reverse process of cubing a number.	$\sqrt[3]{125} = 5$ because $5 \times 5 \times 5 = 125$
6. Powers of…	The powers of a number are that number raised to various powers.	The powers of 3 are: $3^1 = 3$ $3^2 = 9$ $3^3 = 27$ $3^4 = 81$ etc.
7. Multiplication Index Law	When multiplying with the same base (number or letter), add the powers. $\boldsymbol{a^m \times a^n = a^{m+n}}$	$7^5 \times 7^3 = 7^8$ $a^{12} \times a = a^{13}$ $4x^5 \times 2x^8 = 8x^{13}$
8. Division Index Law	When dividing with the same base (number or letter), subtract the powers. $\boldsymbol{a^m \div a^n = a^{m-n}}$	$15^7 \div 15^4 = 15^3$ $x^9 \div x^2 = x^7$ $20a^{11} \div 5a^3 = 4a^8$
9. Brackets Index Laws	When raising a power to another power, multiply the powers together. $\boldsymbol{(a^m)^n = a^{mn}}$	$(y^2)^5 = y^{10}$ $(6^3)^4 = 6^{12}$ $(5x^6)^3 = 125x^{18}$
10. Notable Powers	$\boldsymbol{p = p^1}$ $\boldsymbol{p^0 = 1}$	$99999^0 = 1$
11. Negative Powers	A negative power performs the reciprocal. $\boldsymbol{a^{-m} = \frac{1}{a^m}}$	$3^{-2} = \frac{1}{3^2} = \frac{1}{9}$
12. Fractional Powers	The denominator of a fractional power acts as a 'root'. The numerator of a fractional power acts as a normal power $\boldsymbol{a^{\frac{m}{n}} = (\sqrt[n]{a})^m}$	$27^{\frac{2}{3}} = (\sqrt[3]{27})^2 = 3^2 = 9$ $\left(\frac{25}{16}\right)^{\frac{3}{2}} = \left(\frac{\sqrt{25}}{\sqrt{16}}\right)^3 = \left(\frac{5}{4}\right)^3 = \frac{125}{64}$

9E: Basic Percentages **Year 9 Maths: Autumn 1**

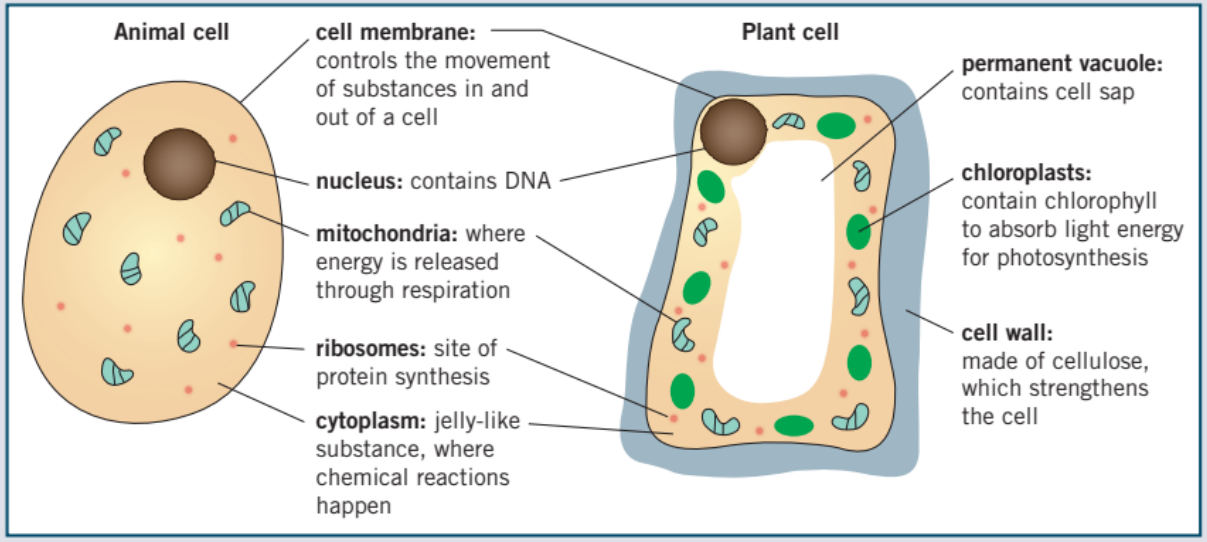
Topic/Skill	Definition/Tips	Example
1. Percentage	Number of parts per 100.	31% means $\frac{31}{100}$
2. Finding 10%	To find 10%, divide by 10	10% of £36 = 36÷10=£3.60
3. Finding 1%	To find 1%, divide by 100	1% of £8 = 8÷100 = £0.08
4. Percentage Change	$\frac{\boldsymbol{Difference}}{\boldsymbol{Original}} \times \mathbf{100\%}$	A games console is bought for £200 and sold for £250. % change = $\frac{50}{200} \times 100 = 25\%$
5. Fractions to Decimals	Divide the numerator by the denominator using the bus stop method.	$\frac{3}{8} = 3 \div 8 = 0.375$
6. Decimals to Fractions	Write as a fraction over 10, 100 or 1000 and simplify.	$0.36 = \frac{36}{100} = \frac{9}{25}$
7. Percentages to Decimals	Divide by 100	$8\% = 8 \div 100 = 0.08$
8. Decimals to Percentages	Multiply by 100	$0.4 = 0.4 \times 100\% = 40\%$
9. Fractions to Percentages	Percentage is just a fraction out of 100. Make the denominator 100 using equivalent fractions. When the denominator doesn't go in to 100, use a calculator and multiply the fraction by 100.	$\frac{3}{25} = \frac{12}{100} = 12\%$ $\frac{9}{17} \times 100 = 52.9\%$
10. Percentages to Fractions	Percentage is just a fraction out of 100. Write the percentage over 100 and simplify.	$14\% = \frac{14}{100} = \frac{7}{50}$

Topic/Skill	Definition/Tips	Example
1. Increase or Decrease by a Percentage	Non-calculator: **Find the percentage** and **add** or **subtract** it from the **original** amount. Calculator: Find the **percentage multiplier** and multiply.	<u>Increase 500 by 20% (Non Calc):</u> 10% of 500 = 50 so 20% of 500 = 100 500 + 100 = 600 <u>Decrease 800 by 17% (Calc):</u> 100%-17%=83% 83% ÷ 100 = 0.83 0.83 x 800 = 664
2. Percentage Multiplier	The **number** you **multiply** a quantity by to **increase or decrease** it by a **percentage**.	The multiplier for increasing by 12% is 1.12 The multiplier for decreasing by 12% is 0.88 The multiplier for increasing by 100% is 2.
3. Reverse Percentage	Find the **correct percentage given in the question**, then work backwards to **find 100%** Look out for words like '**before**' or '**original**'	A jumper was priced at £48.60 after a 10% reduction. Find its original price. 100% - 10% = 90% 90% = £48.60 1% = £0.54 100% = £54
4. Simple Interest	Interest calculated as a **percentage of the original** amount.	£1000 invested for 3 years at 10% simple interest. 10% of £1000 = £100 Interest = $3 \times £100 = £300$
5. Enlargement	The shape will get **bigger or smaller**. Multiply each side by the **scale factor**.	Scale Factor = 3 means '3 times larger = multiply by 3' Scale Factor = ½ means 'half the size = divide by 2'

Topic/Skill	Definition/Tips	Example
6. Finding the Centre of Enlargement	Draw **straight lines** through **corresponding corners** of the two shapes. The centre of enlargement is the point **where all the lines cross over**. Be careful with negative enlargements as the corresponding corners will be the other way around.	
7. Describing Transformations	Give the following information when describing each transformation: Look at the number of marks in the question for a hint of how many pieces of information are needed. If you are asked to describe a 'transformation', you need to say the **name of the type of transformation** as well as the other details.	**- Translation, Vector** **- Rotation, Direction, Angle, Centre** **- Reflection, Equation of mirror line** **- Enlargement, Scale factor, Centre of enlargement**
8. Negative Scale Factor Enlargements	Negative enlargements will **look like they have been rotated**. $SF = -2$ will be rotated, and also twice as big.	Enlarge ABC by scale factor -2, centre (1,1) 
9. Invariance	A point, line or shape is invariant if it **does not change/move** when a transformation is performed. An invariant point 'does not vary'.	If shape P is reflected in the $y - axis$, then exactly one vertex is invariant. 

Eukaryotic cells

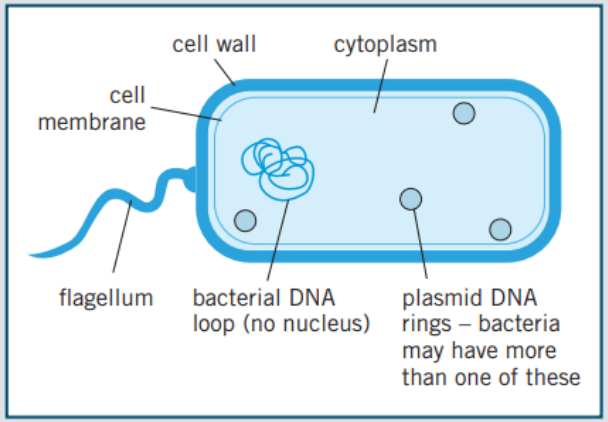
Animal and plant cells are eukaryotic. They have genetic material (DNA) that forms **chromosomes** and is contained in a **nucleus**.



Prokaryotic cells

Bacteria have the following characteristics:

- single-celled
- no nucleus – have a single loop of DNA
- have small rings of DNA called **plasmids**
- smaller than eukaryotic cells.



Diffusion - The spreading out of particles, resulting in a net movement from an area of higher concentration to an area of lower concentration.
Osmosis - The diffusion of water from a dilute solution to a concentrated solution through a partially permeable membrane.
Active transport - The movement of particles from a more dilute solution to a more concentrated solution using energy from respiration.

To calculate the **magnification of an image:** magnification = image size ÷ actual size
Electron microscopes allow you to see sub-cellular structures, such as ribosomes, that are too small to be seen with a light microscope.

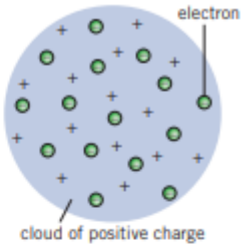
Dalton's model

John Dalton thought of the **atom** as a solid sphere that could not be divided into smaller parts. His model did not include **protons**, **neutrons**, or **electrons**.

The plum pudding model

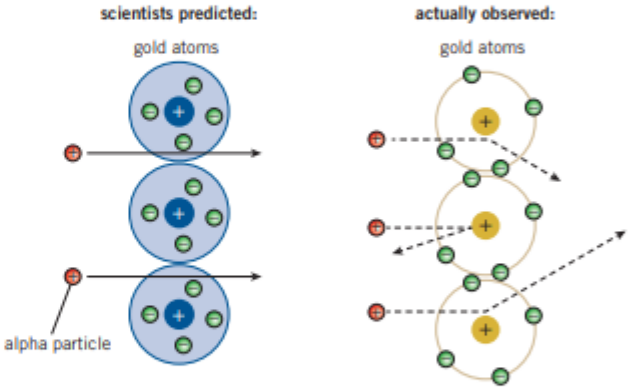
Scientists' experiments resulted in the discovery of sub-atomic charged particles. The first to be discovered were electrons – tiny, negatively charged particles.

The discovery of electrons led to the plum pudding model of the atom – a cloud of positive charge, with negative electrons embedded in it. Protons and neutrons had not yet been discovered.



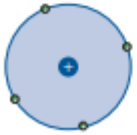
Alpha scattering experiment

1. Scientists fired small, positively charged particles (called alpha particles) at a piece of gold foil only a few atoms thick.
2. They expected the alpha particles to travel straight through the gold.
3. They were surprised that some of the alpha particles bounced back and many were deflected (alpha scattering).
4. To explain why the alpha particles were repelled the scientists suggested that the positive charge and mass of an atom must be concentrated in a small space at its centre. They called this space the **nucleus**.



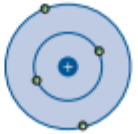
Nuclear model

Scientists replaced the plum pudding model with the nuclear model and suggested that the electrons **orbit** the nucleus, but not at set distances.



Electron shell (Bohr) model

Niels Bohr calculated that electrons must orbit the nucleus at fixed distances. These orbits are called **shells** or **energy levels**.



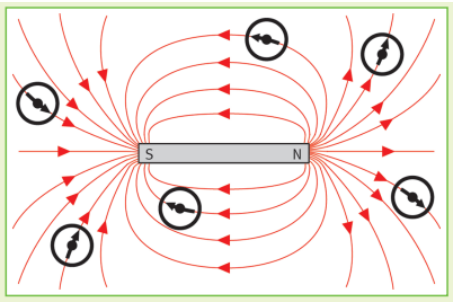
The proton

Further experiments provided evidence that the nucleus contained smaller particles called protons. A proton has an opposite charge to an electron.

Elements are substances made of one type of atom. Each atom of an element will have the same number of protons.
Compounds are made of different types of atoms chemically bonded together.
The atoms in a compound have different numbers of protons.
The **Atomic number** is the number of protons in an atom.
The **Mass number** is the total number of protons and neutrons in an atom.
Electrons in an atom are placed in fixed shells.
You can put
- up to **two** electrons in the first shell
- **eight** electrons each in the second and third shells.

You must fill up a shell before moving on to the next one.

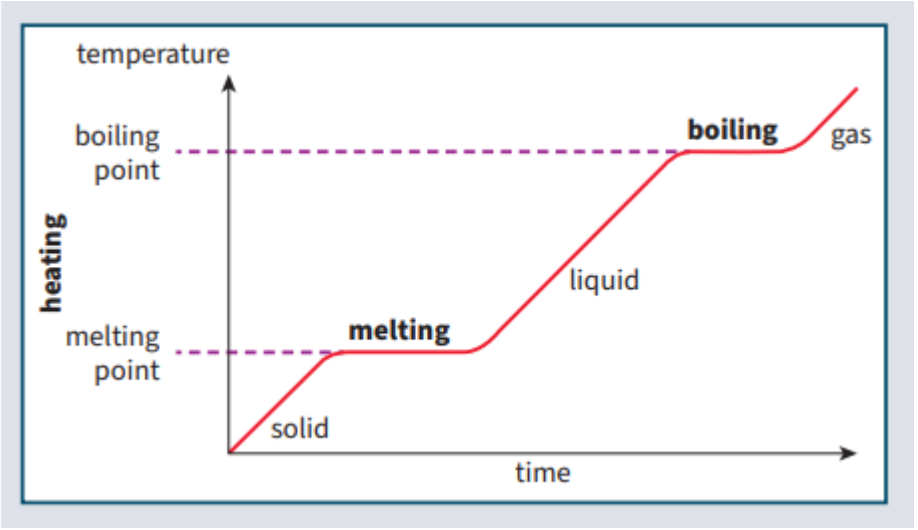
	Relative Charge	Relative Mass
Proton	+1	1
Neutron	0	1
Electron	-1	Very small



Magnets
Magnets have a north (N) and a south (S) pole.
When two magnets are brought close together, they exert a non-contact force on each other.
Repulsion – If the poles are the same (N and N or S and S), they will repel each other.
Attraction – If the poles are different (N and S or S and N), they will attract each other.
The force between a magnet and a magnetic material (iron, steel, cobalt, or nickel) is always attractive.
A permanent magnet produces its own magnetic field which is always there.
An induced magnet is an object that becomes magnetic when it is placed in a magnetic field.
The force between an induced magnet and a permanent magnet is always attractive
A magnetic field is the region around a magnet where another magnet or magnetic material will experience a force due to the magnet.
A magnetic field can be represented by magnetic field lines.
Field lines show the direction of the force that would act on a north pole at that point.
Field lines always point from the north pole of a magnet to its south pole.

Density
density (kg/m^3) = mass (kg) ÷ volume (m^3)
mass (kg) = density (kg/m^3) x volume (m^3)
Density may also be measured in g/cm^3.

Heating a substance increases its **internal energy**. Internal energy is the sum of the total kinetic energy the particles have due to their motion and the total potential energy the particles have due to their positions relative to each other.



1.1 Treaty of Versailles	
1.1.1 Paris Peace Conference	GB, France & USA met in Paris in 1919 to discuss the terms of peace after WWI, including how Germany would be punished. The document was called the Treaty of Versailles.
1.1.2. Blame	Germany was forced to accept all of the blame for starting the war in 1914. This was called the 'war guilt' clause.
1.1.3. Empire	They were not allowed any overseas colonies.
1.1.4. Land	Germany was made smaller. The lost land to; France, Belgium, Denmark & Poland.
1.1.5. Reparations	Germany was forced to pay a fine of £6.6bn in gold & goods.
1.1.6. League of Nations	The League was set up to prevent war from ever happening again, but Germany was not allowed to join.

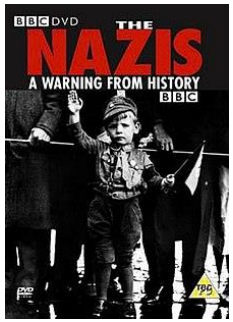
SCAN ME SCAN ME

1.2 About Hitler	
1.2.1 Birth	Hitler was born in the village of Braunau in Austria in 1889. His was NOT German.
1.2.2. School	Hitler did not do well at school. He left school with no qualifications.
1.2.3. Ambition	He wanted to be an artist so moved to Vienna – Austria's capital. In 1907 he failed to get in to the Vienna Academy of Fine Art.
1.2.4. Mother	He worshipped his mother, but she died when he was just 18 years old.
1.2.5. Munich	In 1913 he moved to Munich in Germany. When WWI broke out in 1914 he joined the German army.
1.2.6. WWI	Hitler fought in the trenches during WWI. He was a corporal (a low rank) and was a messenger. He won the Iron Cross medal for bravery.

1.3 Key Terms	Definition
1.3.1. Treaty	An agreement between countries.
1.3.2. Putsch	Revolution or rebellion.
1.3.3. SA (Sturm Abteilung)	The Nazi Party's brown shirted personal army. It offered the Nazis protection and broke up meetings of opponents.
1.3.4. Wall Street Crash	28th October 1929 the American Stock Market crashed leading to a global depression.
1.3.5 Depression	A downturn in the economy where there is a lack of money and jobs.
1.3.6. Propaganda	Information used to promote a political cause or point of view.
1.3.7. Pageantry	Elaborate display or ceremony.
1.3.8. Orator	A skilled public speaker e.g. Hitler
1.3.9. Communism	A political idea where all members of society are equal and contribute to the state equally.

1.4 Rise of the Nazis - Timeline		
1.4.1.	28th June 1919	The Treaty of Versailles was signed. Germany feels betrayed by the terms.
1.4.2.	24th February 2020	The Nazi Party was formed.
1.4.3.	29th July 1921	Hitler becomes leader of the Nazi Party.
1.4.4.	8th-9th November 1923	The Nazi Party fail to take power by force in a failed revolt known as the Munich Putsch. Hitler was sentenced to 5 years in prison for treason.
1.4.5.	18th July 1925	Hitler's book; 'Mein Kampf' or 'My Struggle' is published setting out his key beliefs.
1.4.6.	30th September 1930	The Nazis become the second most popular political party in Germany.
1.4.7.	27th February 1933	The German parliament building (Reichstag) burns down.
1.4.8.	23rd March 1933	The 'Enabling Act' is passed giving Hitler the right to pass laws without parliament.
1.4.9.	30th June – 2nd July 1934	'The Night of The Long Knives' where Hitler eliminates political opponents including Ernst Rohm and the SA.
1.4.10.	19th August 1934	After the death of President Hindenburg, Hitler makes himself Fuhrer (leader) of Germany.

SCAN ME



SCAN ME

1.5 Key Individuals	
1.5.1 Ernst Rohm	A German military officer and leading Nazi who was murdered in 1934 during the Night of The Long Knives.
1.5.2. General Ludendorff	A decorated army officer who joined Hitler to seize power during the Munich Putsch.
1.5.3. Joseph Goebbels	A leading Nazi who became the party's chief of propaganda.
1.5.4. Hermann Goring	A German military leader and one of the most powerful members of the Nazi Party.
1.5.5. Heinrich Himmler	A leading Nazi who went on to become head of the SS (Hitler's elite army).
1.5.6. Franz Von Papen	A politician and leading opponent of Hitler.
1.5.6. General Hindenburg	A German politician and military leader who was President of Germany.

Land Based Organisations 1.1.1

What is land based? Who makes the laws? Who protects it? Who is driving sustainable land use forward?
Where does the money come from?

DEFRA – UK Government Department for the Environment, Food and Rural Affairs

NATURAL ENGLAND

Protects biodiversity by designating SSSI (sites of special scientific interest.) They encourage farmers to look after biodiversity through ELMS (Environmental Land Management Scheme) subsidy. Land owners can gain grants to restore and maintain habitats

Environment Agency

Are responsible for;
Protecting land against flooding
Protecting animal health and welfare on farms
Protecting from all forms of pollution – air, water and land. Can fine farmers if they break regulations on any of the above.

Forestry England

Created in 1919 after the WWI to re-grown the nations timber supply. Timber is a slow crop to grow therefore Forestry England (or Commission) also have secondary remit of providing places for adventure sport and leisure. E.g Moors Valley Park.

Non-Government Organisations - Charities

rspb

RSPB will provide farmers with free surveys of their farmland to identify habitat areas for birds. Farmers can then use these surveys for evidence when they claim subsidies through Natural England's ELMS. They give advice on how to manage farmland hedgerows for wildlife, from their value and history to upkeep and maintenance.

National Trust

Were formed to look after places of historic interest and natural beauty for the benefit of everyone. That includes nearly 260,000 hectares of land in UK – biggest land owner other than the King. Spearheading sustainable farming approaches.

RSPCA ASSURED

.Farms on the RSPCA Assured scheme are assessed and monitored regularly to ensure all the animals are raised to the RSPCA's strict higher welfare standards. They can launch an investigation An investigation is launched every time RSPCA Assured receives a complaint or is made aware of potential welfare issues on one of its member sites. These could be made by farm workers, other animal welfare organisations, RSPCA Assured Assessors or members of the public.

Land Based Sectors – more than farming

Agriculture

Agriculture is split into arable (crop) and livestock (animal) farming. 70% of UK land is covered by agriculture. Worth £7.2 billion in 2022. The **total croppable area** saw little change and was 6.1 million hectares. The **total labour force** on commercial holdings decreased by 1.7% and was 462 thousand people.

Horticulture

Commercial horticulture is the growing of fruit, vegetables and ornamental flowers The horticultural sector is worth over £5 billion to the UK economy. In 2022, UK home-produced fruit was worth just over £1 billion, while vegetables were worth £1.8 billion. Horticulture contributes significantly to food security, however the UK produces only 17% of its fruit and 55% of its vegetable supply,

Infrastructure

Infrastructure is the backbone of the country. It is the set of facilities and systems that serve a country, city, or other area, and encompasses the services and facilities necessary for its economy, households and to businesses to function. Infrastructure is composed of public and private physical structures such as roads, bridges, energy supply, internet and communications supply.

Adventure, Sport & Leisure

The United Kingdom is the largest adventure tourism market in Europe, according to the World Tourism Organization, with 19% of the world's adventure travel tourists. A recent Visit Britain survey concluded that 40% of British tourists prefer sports and active holidays. Also includes animal health and welfare, wildlife conservation and the game, shooting and fishing industries.

Energy Production

UK is transitioning away from fossil fuels to renewable sources. In 2024 43% of energy was from, renewable sources coming from a mix of wind, solar, bioenergy and hydroelectric sources. Burning fossil fuels to create electricity has long been a major contributor in the emission green house gasses. into our atmosphere. UK Government is promising zero-carbon by 2035.

Forestry

The area of woodland in the United Kingdom at 31 March 2023 is estimated to be 3.25 million hectares.
Wood products imported into the UK in 2022 were valued at £10.7 billion . Average employment in 2021 of 20 thousand in forestry, 8 thousand in sawmilling and 5 thousand in panel mills.
The UK was the third-largest net importer (imports less exports) of forest products in 2021, behind China and the USA.

Key terms

1	**Behaviour**	How an animal acts / what it does.
2	**Behaviour pattern**	A set of behaviours that have the same purpose.
3	**Normal behaviour**	Behaviours you would expect to see.
4	**Abnormal behaviour**	Behaviour that you would not expect to see.
5	**Stereotype**	Repeated movement or action for no particular reason.
6	**Internal factor**	Something inside of the animal's body.
7	**External factor**	Something outside of the animal's body.
8	**Handling**	Working with an animal but allowing some freedom of movement.
9	**Restraint**	Working with an animal and restricting movement.

10	**Nocturnal**	Peak activity during the night.
11	**Diurnal**	Peak activity during the day.
12	**Crepuscular**	Peak activity at dawn / duck.
13	**Vocalisation**	Communication using sound.
14	**Scenting**	Communication using smell.
15	**Interspecific**	Happens between the same type of animal / species. E.g Dogs playing together.
16	**Intraspecific**	Happens between different types / species. E.g Cat chasing a mouse.
17	**Biosecurity**	Preventing the spread of bacteria / virus / fungi.

Key terms

1	**PPE**	Why is it needed?
2	**Overalls**	Biosecurity Professional standards
3	**High vis jacket**	Seen by machinery Seen by animal
4	**Gloves**	Biosecurity
5	**Gauntlet**	Protection from bites and scratches
6	**Steel toes boots**	Prevent foot injury from livestock / equipment.
7	**Hair tie**	Biosecurity + prevent injury.
8	**Eye protection**	Protection from beaks / claws.
9	**Face mask**	Some protection from dust, especially with birds.

10	Handling equipment	Used for
11	Collar and lead	Prevent escape and allows the animal to be moved / led.
12	Muzzle	Hold the mouth and prevent bites.
13	Headcollar and harness	Provide more control for moving larger, stronger animals.
14	Crush cage	Gently holds animal in place within the cage for restraint.
15	Graspers and nooses	Prevents animal from approaching the handler, especially if aggressive.
16	Towels and blankets	Wrap small animals to hold them in place and prevent bites.