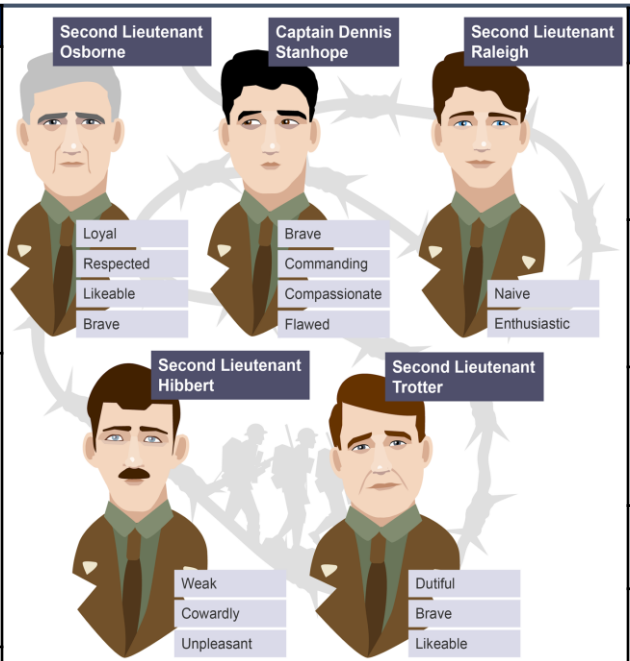
Year 9 Mid-Year Knowledge Organiser

HENLEY BANK
HIGH SCHOOL

Unit 7 - Conflict– Knowledge Organiser

Journeys End

Act 1	1. Hardy is drying his damp sock with a candle; Osborne arrives to relieve him of his duty. 2. Hardy tells Osborne about the German trucks that signal an attack approaching. 3. Raleigh arrives and reveals to Osborne how he knew Stanhope from home. 4. This cause tension once Stanhope and Raleigh meet and, after Raleigh goes on duty, Stanhope gets drunk and is put to bed.
Act 2	1.The Colonel visits to inform Stanhope that Osborne and Raleigh are to direct a raid on the German trenches in order to find out information for the big attack. 2. Hibbert attempts to go home 3. Osborne takes news of the raid bravely and insists that Trotter doesn't tell Raleigh about the true nature of the raid.
Act 3	1.Raleigh and Osborne prepare for the raid. 2.Osborne is killed by a hand grenade waiting for Raleigh. 3. A German prisoner is captured, but very little information is gotten from him. 4. Raleigh returns from the raid in a daze- shocked at the brutal reality of war. 5. Despite the attack being at 6 a.m. in the morning, Stanhope is determined to get drunk. 6. Raleigh refuses to eat in the dugout, believing the men are celebrating despite Osborne's death. 7. When the attack comes, Trotter is first up, followed by Raleigh 8. Stanhope learns Raleigh has been hit in the back by a shell and is paralysed 9. Stanhope hides the true nature of Raleigh's injuries. Raleigh dies alone. 10. The entire dugout is destroyed- symbolising the deaths of all the men.



Context

World War 1:

1. Journey's End was written in 1928 and is about the experiences of soldiers in World War One.
2. This war took place from 1914 until 1918. The play is set in the trenches near Saint-Quentin in France in 1918, towards the end of WW1.
3. The story plays out over four days and focuses on officers in a dugout from 18th March 1918 until the 21st.

Shell Shock:

1. In the early years of World War One, shell shock was believed to be the result of a physical injury to the nerves and being a victim to enemy attacks.
2. However, it soon was used to describe the mental illness that was caused by the experiences of war. Now it is more commonly known as Post Traumatic Stress Disorder (PTSD).

Vocabulary and Subject Terms

Conflict	a disagreement or argument. This could be physical, verbal, emotional or psychological.
Comradeship	the feeling of friendship between people who live or work together, especially in a difficult situation.
Cowardice	A lack of bravery which stops someone from taking a risk or facing danger
Heroism	Having great bravery and courage.
Futile	not producing a result, seems pointless
Insubordination	A refusal to follow (obey) orders
Propaganda	information which is one-sided (bias) used to promote a political cause or point
Patriotism	the feeling of loving your country more than any others and being proud of it.
Elision	the dropping of sounds at the beginning or end of a word.
Euphemism	a word/phrase used to avoid saying an unpleasant or offensive word
Colloquial Language	language used in every day spoken language. Casual and conversational.

Unit 7 Conflict – Knowledge Organiser

Journeys End

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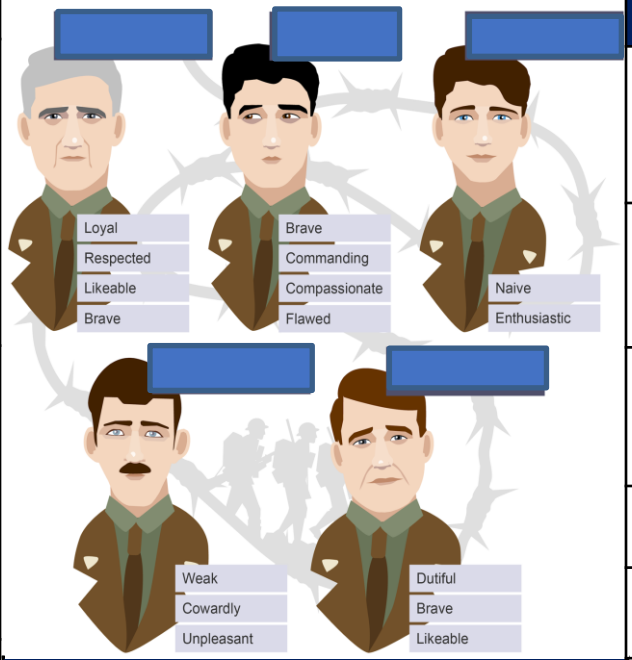
Act 2	1.The Colonel visits to inform Stanhope that Osborne and Raleigh are to direct a raid on the German trenches in order to find out information for the big attack. 2. 3.
Act 3	1.Raleigh and Osborne prepare for the raid. 2.. 3. 4. 5. 6. 7. 8. 9. 10.



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Shell Shock:

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Vocabulary and Subject Terms

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Colloquial Language	

Unit 7 - Conflict– Knowledge Organiser

Sentence structures

Declarative - Makes a statement and ends with a full stop.

Imperative - A command or a polite request. It ends with an exclamation mark or a full stop

Interrogative - Asks a question and ends with a question mark

Exclamatory - Expresses excitement or emotion. It ends with an exclamation mark

Independent clause - A clause that can stand alone as a sentence. Remember that a sentence has a subject and a verb.

dependant/subordinate clause - Is one that cannot stand alone as a complete sentence

Simple sentence - Has just one independent clause.

Compound - Has at least two independent clauses.

Complex - Has an independent clause and at least one dependent/subordinate clause.

Appositive phrase - A noun or a noun phrase that sits next to another noun to rename it or to describe it in another way.

Imagery and implied meaning

Connotation	A feeling or idea that is suggested by a particular word, or something suggested by an object or situation.
Motif	A repeated image throughout the text
Slang	a type of colloquial language--often involves vulgar (rude) language
Allusion	An allusion is a reference, usually short, to a person, place, thing, event, or other literary work with which the reader is presumably familiar
Foreshadow	To act as a warning or sign of a future event.

Form and structure - Poetry

Line - A subdivision of a poem; a group of words arranged into a row that ends for a reason other than the right-hand margin

Stanza - The main building block of a poem. It is a unit of poetry made up of lines that relate to a similar thought or topic—like a paragraph in prose or a verse in a song.

Enjambment - A sentence or clause continues across a line break.

End-stop - A pause at the end of a line of poetry.

Caesura- A pause that occurs within a line of poetry.

Couplet - Two lines of poetry next to each other, especially ones that rhyme

Tercet - A three-lined stanza, or a group, or unit of three lines.

Quatrain - A four line stanza, or a four line complete poem.

Sonnet - A fourteen line poem with a fixed rhyme scheme. Often, sonnets use iambic pentameter.

Free Verse - poetry which does not follow any rhythm or rhyme scheme rules.

Imagery and implied meaning - Poetry

Personification- Giving human qualities to something that is inhuman

Simile - A comparison of one thing with another thing of a different kind, used to make a description more emphatic or vivid; uses ‘as’ or ‘like’

Symbolism - Using symbols, (words, people, locations, or abstract ideas) to represent something beyond the literal meaning.

Metaphor- this describes a person or object by linking to something that is thought to have similar qualities to that person or object.

Rhyme - Poetry

Full Rhyme - The repetition of the same sound, at the end of a line of poetry.

Half Rhyme - Words with similar but not exact rhyme. This is also known as slant rhyme or imperfect rhyme. Like grieve and believe.

End Rhyme - These are rhymes that occur between the final words of two lines of poetry.

Internal Rhyme - Internal rhyme occurs in a single line of poetry or between internal sentences

Repetition and Emphasis - Poetry

Repetition - The same word or phrase being used multiple times to create impact.

Anaphora - Repetition of the same word or phrase at the start of consecutive sentences or sentence clauses.

Epiphora / Epistrophe - Repetition of the same word or phrase at the end of consecutive sentences or sentence clauses.

Epizeuxis - Repetition of a word or phrase in quick succession

Unit 7 - Conflict– Knowledge Organiser

Sentence structures

Declarative -

Imperative -

Interrogative -

Exclamatory -

Independent clause -

dependant/subordinate clause

Simple sentence -

Compound -

Complex -

Appositive phrase -

Imagery and implied meaning

	A feeling or idea that is suggested by a particular word, or something suggested by an object or situation.
	A repeated image throughout the text
	a type of colloquial language--often involves vulgar (rude) language
	An allusion is a reference, usually short, to a person, place, thing, event, or other literary work with which the reader is presumably familiar
	To act as a warning or sign of a future event.

Form and structure - Poetry

_____A subdivision of a poem; a group of words arranged into a row that ends for a reason other than the right-hand margin

_____The main building block of a poem. It is a unit of poetry made up of lines that relate to a similar thought or topic—like a paragraph in prose or a verse in a song.

_____A sentence or clause continues across a line break.

_____A pause at the end of a line of poetry.

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_____A three-lined stanza, or a group, or unit of three lines.

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Imagery and implied meaning - Poetry

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End Rhyme -

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Repetition and Emphasis - Poetry

Repetition -

Anaphora -

Epiphora / Epistrophe -

Epizeuxis -

Year 9 – Sparx Codes

Paper 1 – Non Calculator	
Topic	**Sparx Code**
Order of operations	M521
Estimating	M878
FDP	M958, M264 & M553
Percentage of amounts	M437
Calculating with Fractions	M835, M601, M931, M157, M197, M110 & M265
Calculating with decimals	M803, M429 & M152
Calculating with negatives	M106 & M288
Ratio	M801, M267 & M525
Standard Form	M719 & M678
Index Laws	M120, M608 & M150
Solving equations	M634, M647, M401 & M554
Expanding single brackets	M237 & M792
Forming expressions	M957
Inverse Proportion	M665
HCF/LCM	M365
Speed, distance and time	U151

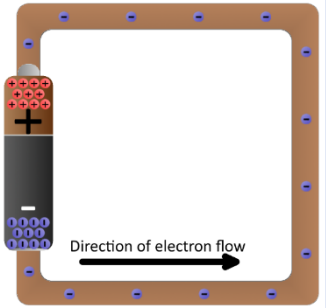
Paper 2 - Calculator	
Topic	**Sparx Code**
Simplify expressions	M795 &531
Prime Factor Decomposition	M108
Direct Proportion	M478
Coordinates and midpoints	M311
Compound interest	U332
Density, mass and volume	U910
Percentage Change	M533
Calculations with time	M892, M963 & M627
Error Intervals	M730
Reverse percentages	M528
Recurring Decimals to fractions	U689
Solving quadratics	U178 & U228
Pressure, force and area	U527
Ratios and Fractions	U176
Area of Triangles	M610 & M996

Year 9 Science – Electricity: Potential Difference

Electrical current is a flow of electrical charge.

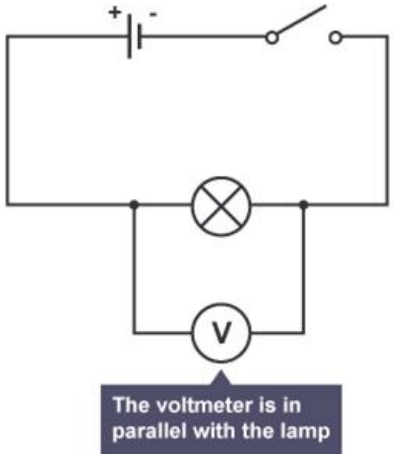
For charge to flow there must be a source of **potential difference (pd)**, which is also called **voltage**.

The size of the potential difference is measured in **volts** and is the amount of energy transferred per coulomb of charge.



potential difference (V) = energy transferred (J) / charge (C)

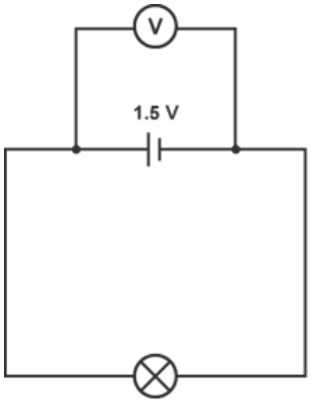
$$V = \frac{E}{Q}$$

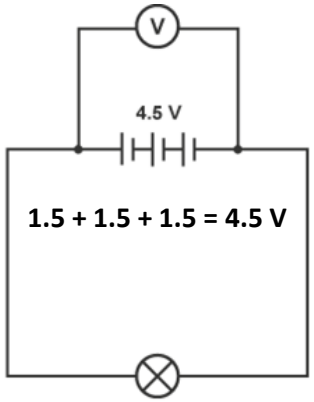


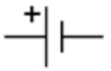
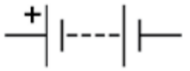
The potential difference of a component can be measured using a **voltmeter**.

The voltmeter must be positioned **in parallel** to the component it is measuring as it is **measuring the difference** between two points in the circuit.

When cells are connected in series, the potential differences of each cell add together to give the potential difference of the battery of cells.

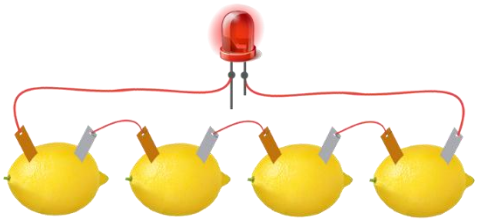




Key Terms	Definitions
Cell 	A chemical store of energy that provides the potential difference in a circuit.
Battery 	Two or more electrical cells working together.
Potential difference or voltage (V)	The amount of energy transferred per coulomb of charge between two points in a circuit. The **work done** per coulomb of charge.
Volts (V)	The unit of potential difference. 1 volt = 1 joule per coulomb
Voltmeter 	Used to measure the potential difference between two points in circuit. Voltmeters must be connected in parallel to the component they are measuring the pd of.
Charge (Q)	A property of some particles, which causes them to experience a force when they are in an electromagnetic field. Charge can be **positive**, **negative** or **neutral**.
Coulombs (C)	The unit of charge. 1 coulomb is the charge that flows when a current of 1 A flows for 1 s, which is approximately 6 240 000 000 000 000 000 electrons!
Series circuit	An electrical circuit where all the components are connected in one loop.
Parallel circuit	An electrical circuit containing more than one loop or path for the current to flow.

Electrical cells can be made using a piece of fruit and two different pieces of metal.

The further apart the two metals are from each other in the reactivity series, the larger the potential difference of the cell.



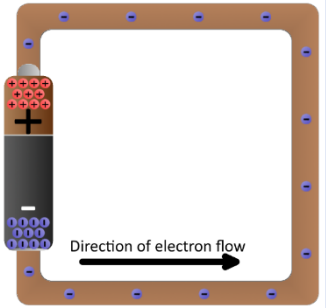
This picture shows a battery made of 4 lemon cells!

Year 9 Physics – Electricity: Potential Difference

Electrical current is a flow of electrical c_____.

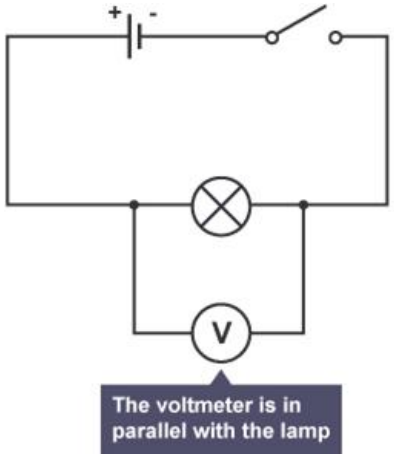
For charge to flow there must be a source of **p_____ d_____ (pd)**, which is also called **v_____**.

The size of the potential difference is measured in **V_____** and is the amount of e_____ transferred per coulomb of charge.



potential difference (V) = _____

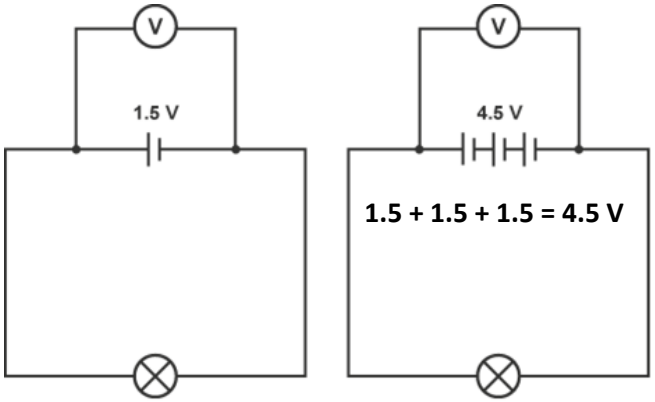
$$V = \frac{E}{Q}$$

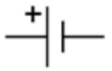
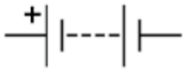
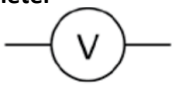


The potential difference of a component can be measured using a **v_____**.

The voltmeter must be positioned **in p_____** to the component it is measuring as it is **measuring the difference** between two points in the circuit.

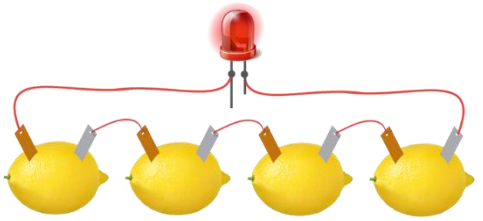
When cells are connected in s_____, the potential differences of each cell a___ together to give the potential difference of the battery of cells.



Key Terms	Definitions
_____ 	A chemical store of energy that provides the potential difference in a circuit.
_____ 	Two or more electrical cells working together.
	The amount of energy transferred per coulomb of charge between two points in a circuit. The **work done** per coulomb of charge.
Volts (V)	
Voltmeter 	
	A property of some particles, which causes them to experience a force when they are in an electromagnetic field. Charge can be **positive**, **negative** or **neutral**.
	The unit of charge. 1 coulomb is the charge that flows when a current of 1 A flows for 1 s, which is approximately 6 240 000 000 000 000 000 electrons!
Series circuit	
Parallel circuit	

Electrical cells can be made using a piece of fruit and two different pieces of metal.

The further apart the two metals are from each other in the reactivity series, the l_____ the potential difference of the cell.

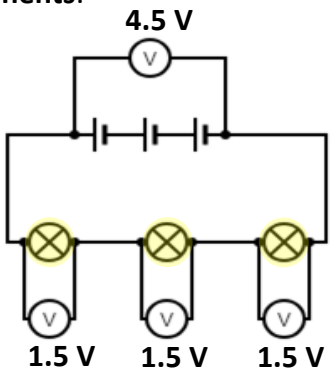


This picture shows a battery made of 4 lemon cells!

Year 9 Science – Electricity: Potential Difference

The potential difference of components in circuit depends on the potential difference of the cell/battery and the type of circuit.

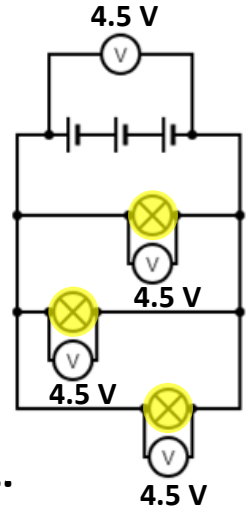
For components connected **in series**, the potential difference of the power supply is **shared between the components**.



In series:

$$V_{total} = V_1 + V_2 + V_3 \ldots$$

For components connected **in parallel**, the potential difference across each component is the **same as the potential difference of the power supply**.



In parallel:

$$V_1 = V_2 = V_3 \ldots$$

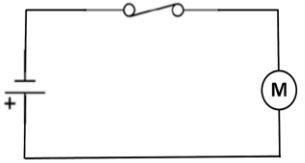
Key Terms	Definitions
Current (I)	The rate of flow of charge in a circuit.
Amps (A)	The unit of current. 1 amp = 1 coulomb per second
Energy pathway	A way of transferring energy from one store to another, for example electrical current.
Work	Transferring (shifting) energy from one store to another. Measured in joules (J).
Power (P)	Power is the rate of doing work. In electrical circuits this depends on the size of the current and the potential difference.
Watts (W)	The unit of power. 1 watt = 1 joule per second

Power is the rate of doing work and in electrical circuits this depends on the size of the current and the potential difference.

The unit of power is the **watt** (**W**) or joules per second (J/s).

power (W) = current (A) x potential different (V) $\quad P = I \times V$

Electrical current is an **energy pathway** – it transfers or shifts energy from one store to another. We call this **electrical working** (or **electrical work done**).



eg this circuit transfers energy from the cell (a chemical store) to the motor (a kinetic store) by electrical work done.

Power is the rate of transferring energy or doing work.

$$\text{power (W)} = \frac{\text{energy (J)}}{\text{time (s)}} \qquad P = \frac{E}{t}$$

A kettle transfers energy to the **thermal store** of the water and kettle (and surroundings!) by **electrical work done**.

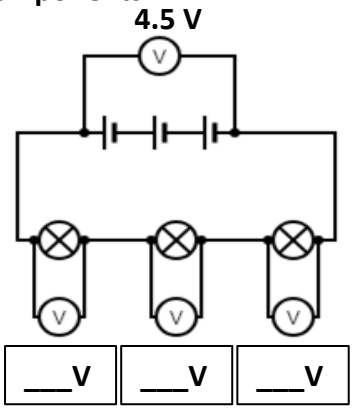
A kettle plugged into UK mains electricity at **230 V** with a **current of 10 A** has a **power rating of 2 300 W** (2.3 kW).

A kettle with a **power rating of 2 300 W** transfers **2 300 J every second**.

Year 9 Physics – Electricity: Potential Difference

The potential difference of components in circuit depends on the potential difference of the cell/battery and the type of circuit.

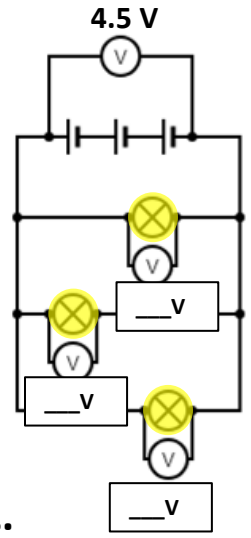
For components connected **in s_____**, the potential difference of the power supply is **shared between the components**.



In series:

$$V_{total} = V_1 + V_2 + V_3 \ldots$$

For components connected **in p_____**, the potential difference across each component is the **same as the potential difference of the power supply**.



In parallel:

$$V_1 = V_2 = V_3 \ldots$$

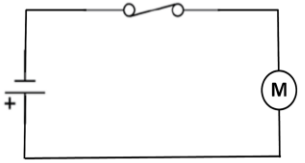
P_____ is the rate of doing work and in electrical circuits this depends on the size of the c_____ and the p_____ d_____.

The unit of power is the **w___ (W)** or joules per second (J/s).

power (W) = current (A) x potential difference (V) $P = I \times V$

Key Terms	Definitions
Current (I)	
Amps (A)	
	A way of transferring energy from one store to another, for example electrical current.
Work	
	The rate of doing work. In electrical circuits this depends on the size of the current and the potential difference.
	The unit of power. 1 watt = 1 joule per second

Electrical current is an **energy pathway** – it transfers or shifts energy from one store to another. We call this **e_____ w_____** (or **electrical work done**).



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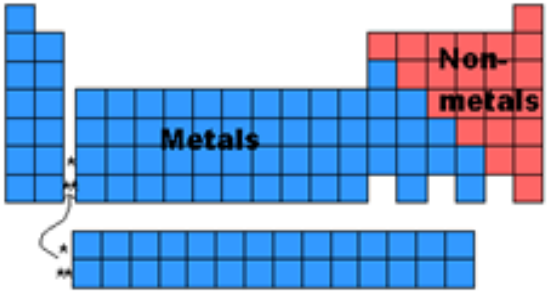
A kettle with a **power rating of 2 300 W** transfers **_____ J every second**.

Year 9 Science: Reactivity

Metals and Non-Metals

- Metals are found on the left hand side of the periodic table
- When metals react, they lose electrons to form positive ions.



- Properties of metals are: high density, high melting point and good conductors of heat and electricity.
- Only three metals are magnetic (iron, cobalt and nickel).
- Metals react with oxygen to make metal oxides e.g.

  Magnesium+ Oxygen Magnesium Oxide

Metals and Acids

- Acids react with most metals and a salt and hydrogen gas are produced. This is the general word equation for the reaction:

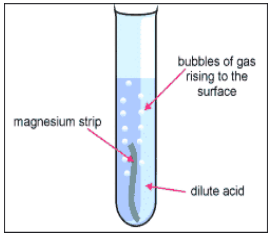
  metal + acid → salt + hydrogen

- The salt produced depends upon the metal and the acid. Here are two examples:

  zinc + sulphuric acid → zinc sulphate + hydrogen

  magnesium + hydrochloric acid → magnesium chloride + hydrogen

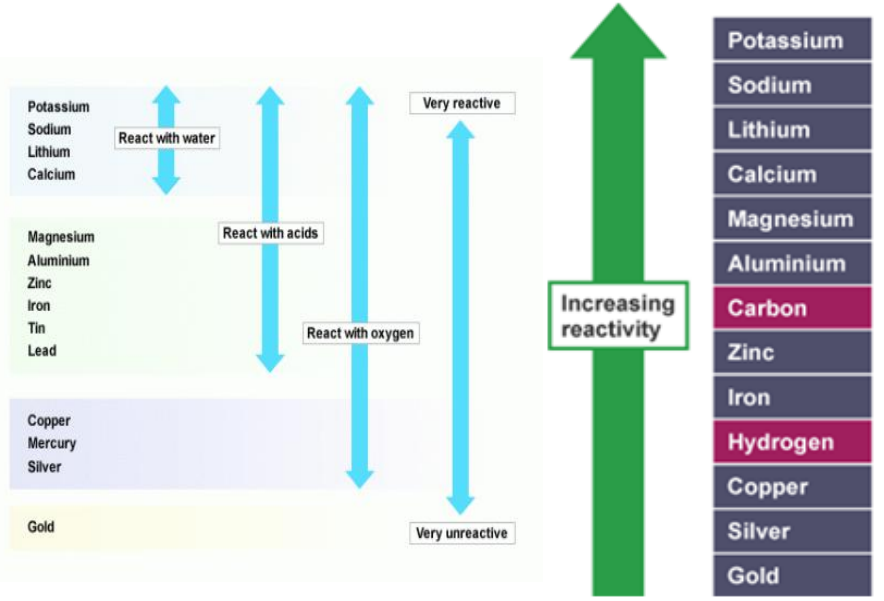
- To test for hydrogen gas we use the 'squeaky pop' test. This means that a squeaky pop sound is produced when a lit splint is placed in the tube.



Key Terms	Definitions
Reactive	How likely a substance is to react
Reactivity Series	A table which shows the reactivity of different elements

The Reactivity Series

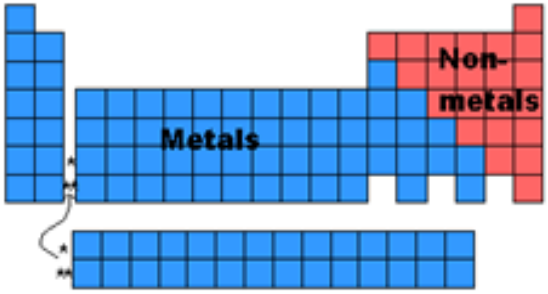
- Elements are ordered by their reactivity in a series called **the reactivity series**
- You should learn the position of the elements identified on the series below.
- In the reactivity series, the most reactive element is placed at the top and the least reactive element at the bottom.
- More reactive metals are more likely to lose electrons and form positive ions.
- Observations of the way that these elements react with water, acids and steam enable us to put them into this series.



Year 9 Science: Reactivity

Metals and Non-Metals

- Metals are found on the _____ hand side of the periodic table
- When metals react, they lose electrons to form _____ ions.



- Properties of metals are: high _____, high melting point and good conductors of heat and electricity.
- Only three metals are magnetic (iron, cobalt and nickel).
- Metals react with oxygen to make metal _____ e.g.

  Magnesium+ Oxygen Magnesium Oxide

Metals and Acids

- Acids react with most metals and a salt and _____ gas are produced. This is the general word equation for the reaction:

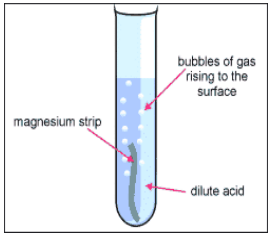
  metal + acid → salt + hydrogen

- The salt produced depends upon the metal and the acid. Here are two examples:

  zinc + sulphuric acid → zinc sulphate + hydrogen

  magnesium + hydrochloric acid → magnesium chloride + hydrogen

- To test for hydrogen gas we use the '_____' test. This means that a squeaky pop sound is produced when a lit splint is placed in the tube.



Key Terms	Definitions
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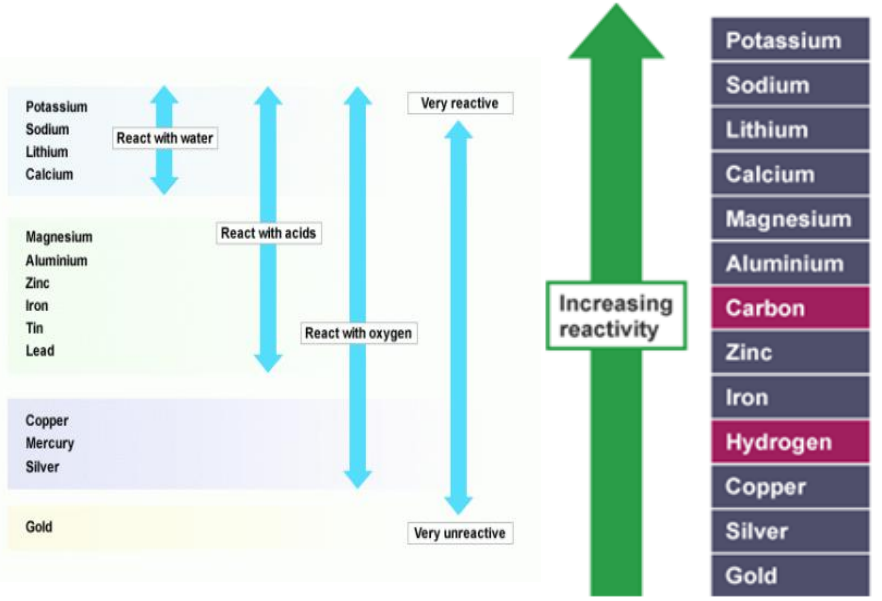
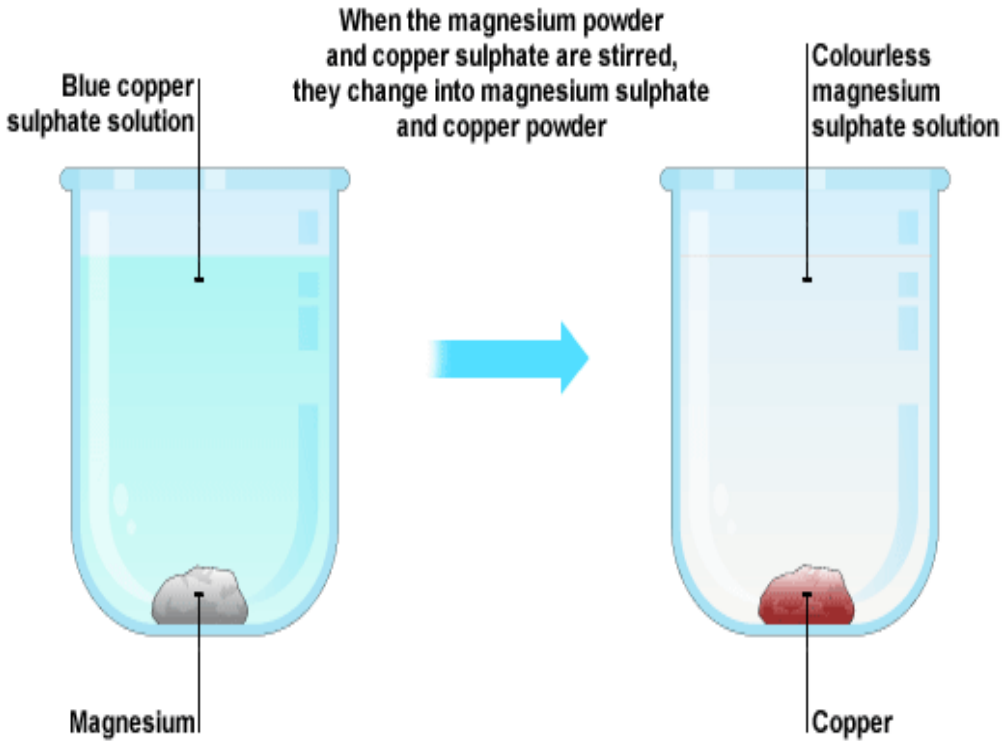


Year 9 Science: Reactivity

Displacement reactions

- **Displacement reactions** involve a metal and a compound of a different metal.
- In a displacement reaction a more reactive metal replaces a less reactive metal in a compound.
- Displacement reactions are **exothermic**
- The larger the difference in reactivity the more heat energy that will be released
- The example below shows the following reaction

Copper sulphate + Magnesium → Magnesium sulphate + Copper



Key Terms	Definitions
Ore	A rock that contains enough metal that it is economical to extract
Displacement Reactions	A reaction where one element replaces another element in a compound
Electrolysis	Breaking down a substance using electricity
Reduction	When a metal loses oxygen

Extraction of Metals

- Most metals need to be extracted from their ore so that we can use them
- A metal ore is a compound found in rock, that contains enough metal that it is **economical** to extract it.
- Metals which are less reactive than carbon are extracted from their ore using **reduction**. This is an example of a displacement reaction
- **Example: Iron Oxide + Carbon → Iron + Carbon Dioxide**
- Metals more reactive than carbon are extracted from their ore using **electrolysis**.
- Electrolysis is expensive as it requires a lot of energy
- The least reactive metals such as gold and silver are found as an element—they do not form a compound. This means **they do not need to be extracted from their ore**

Potassium	Electrolysis
Sodium	
Calcium	
Magnesium	
Aluminium	
Zinc	Heat ore with carbon
Iron	
Tin	
Lead	
Copper	
Silver	Found naturally as un-combined elements on Earth
Gold	
Platinum	

Year 9 Science Knowledge Organiser: Reactivity

Displacement reactions

- **Displacement reactions** involve a metal and a compound of a different metal.
- In a displacement reaction a _____ reactive metal replaces a _____ reactive metal in a compound.
- Displacement reactions are _____
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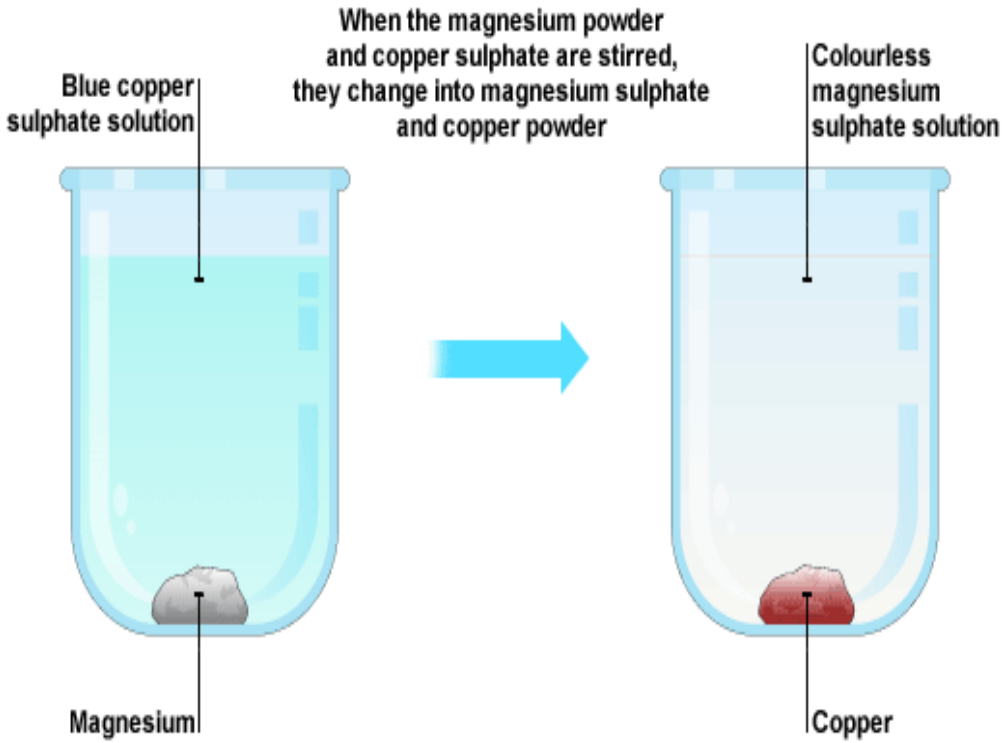

Key Terms	Definitions
	A rock that contains enough metal that it is economical to extract
	A reaction where one element replaces another element in a compound
Electrolysis	
	When a metal loses oxygen

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Sodium	
Calcium	
Magnesium	
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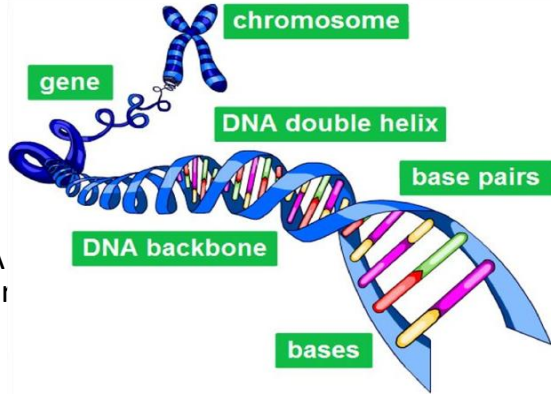
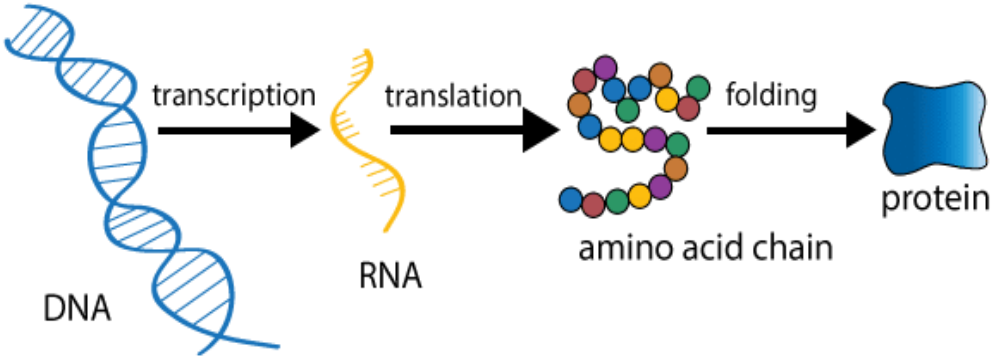
Iron	
Tin	
Lead	
Copper	
Silver	Found naturally as un-combined elements on Earth
Gold	
Platinum	

Year 9 Science - Genetics

The Gene

- DNA controls many characteristics of organisms.
- DNA is made of two strands forming a double helix.
- DNA is contained in structures called chromosomes.
- A gene is a small section of DNA on a chromosome that codes for a specific protein

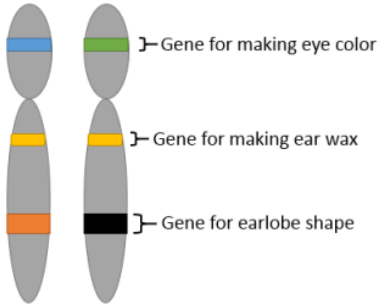




Each gene codes for a particular sequence of amino acids. A sequence of amino acids makes a protein. Proteins are the building blocks of cells. Proteins determine certain characteristics.

Inheritance

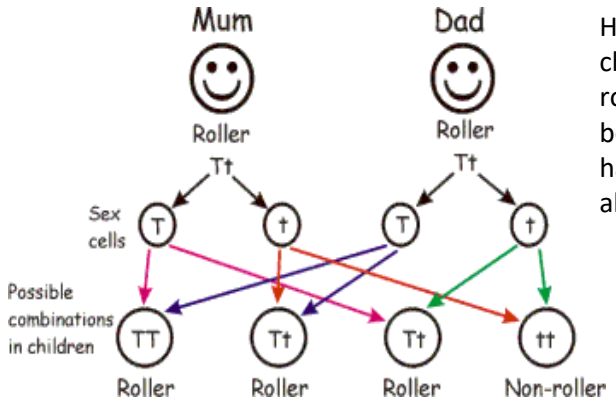
Genes occur in pairs, one of each is inherited from each parent. Some characteristics are controlled by a single gene. Most characteristics are a result of multiple genes interacting rather than a single one. **Each gene can have different forms called alleles.**



Key Terms	Definitions
DNA	Genetic material in the nucleus of a cell
Gene	A small section of DNA on a chromosome
Chromosome	Structures that contain DNA
Amino acid	Coded for by a gene; building blocks of protein
Dominant	A gene or characteristic that will always be expressed in the offspring (represented with a capital letter)
Recessive	A gene or characteristics that will only be expressed in the offspring if the other gene is also recessive (represented with a lower case letter)
Allele	A form of a gene (e.g. for brown eyes or blue eyes)
Genotype	Genes that are present, e.g. HH, Rr
Phenotype	Characteristics that are present
Homozygous	If the two alleles present are the same, e.g. MM, qq
Heterozygous	If the two alleles present are different, e.g. Mm, Qq

Inheritance

Genetic crosses are used to show characteristics that are controlled by a single gene, giving a percentage chance of a characteristic in the offspring.

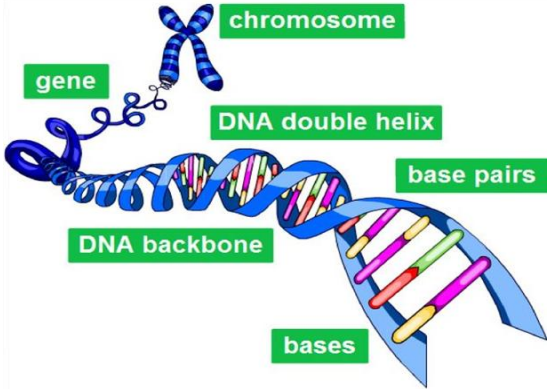


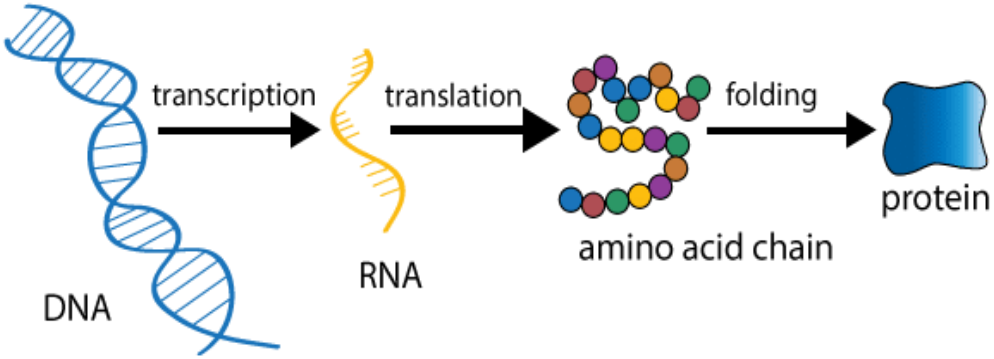
Here there is a 75% chance of a tongue roller (T). This is because 3 offspring have the dominant T allele.

Year 9 Science - Genetics

The Gene

- DNA controls many characteristics of organisms.
- DNA is made of ___ strands forming a d_____ h_____.
- DNA is contained in structures called c_____.
- A gene is a small section of DNA on a chromosome that codes for a specific p_____





Each gene codes for a particular sequence of a_____ a____. A sequence of amino acids makes a p_____ Proteins are the building blocks of cells. Proteins determine certain characteristics.

Inheritance

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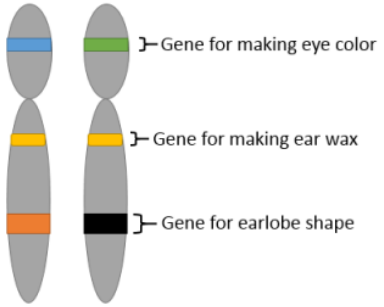

Key Terms	Definitions
	Genetic material in the nucleus of a cell
	A small section of DNA on a chromosome
Chromosome	
Amino acid	
	A gene or characteristic that will always be expressed in the offspring (represented with a capital letter)
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Genotype	
Phenotype	
	If the two alleles present are the same, e.g. MM, qq
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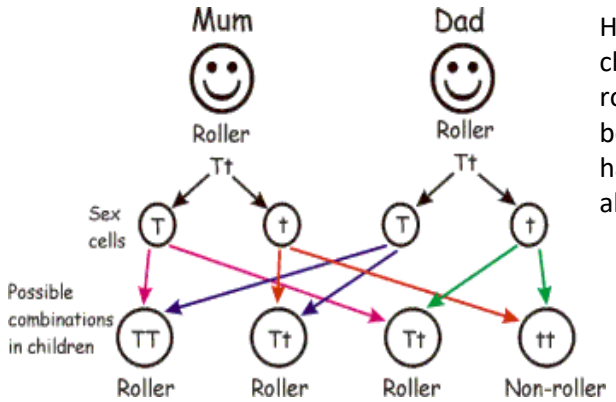


Here there is a …….% chance of a tongue roller (T). This is because 3 offspring have the dominant T allele.

Year 9 Science - Genetics

Inheritance

Punnet Square diagrams show the possible combinations of gametes.

Females have 2 X chromosomes

Males have XY chromosomes

The chance of child being born male is 50%

	X	X
X	XX	XX
Y	XY	XY

Darwin's Discoveries

Darwin found evidence of evolution in the 1830s during his round-the-world journey. Darwin coined the term "survival of the fittest" to explain his theory of natural selection:

1. Individual organisms within a particular species show a wide range of **variation** for a characteristic.

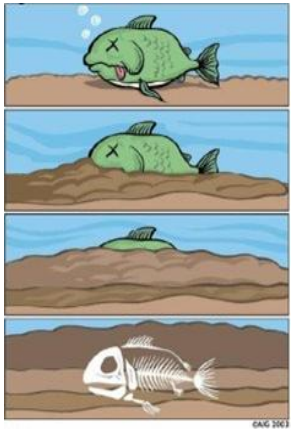
2. Individuals with characteristics most suited to the environment are more likely to survive to breed successfully. (**'natural selection'**)

3. The characteristics that have enabled these individuals to survive are then passed on to the next generation.(**inheritance**)

Darwin published his ideas in *On the Origin of the Species* but his ideas were initially rejected by other academics due to existing religious beliefs and a lack of explanation.

The idea of natural selection is now widely accepted, since the discovery of the gene provided further evidence.

Key Terms	Definitions
Selective breeding	The process by which humans breed plants and animals for particular genetic characteristics
Fossils	Prints or remains of organisms that have been preserved in rock through a process of mineralisation
Extinction	There are no remaining individuals of a species still alive



Fossils and Extinction

Fossils are the imprints of remains from organisms from millions of years ago.

They provide evidence for evolution but the record is incomplete as we don't have fossils for every animal that ever lived.

When there are no more organisms of a species left known to man we say it is extinct.

Extinction can happen due to human activities like hunting and habitat destruction or natural causes like volcanoes.

Year 9 Science - Genetics

Inheritance

Punnet Square diagrams show the possible combinations of gametes.

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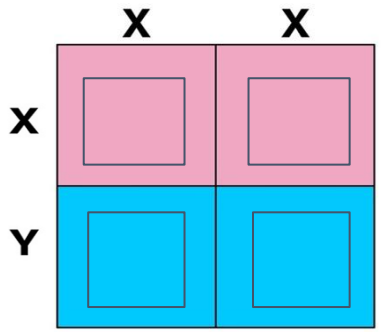
Males have XY chromosomes

The chance of child being born male is _____%



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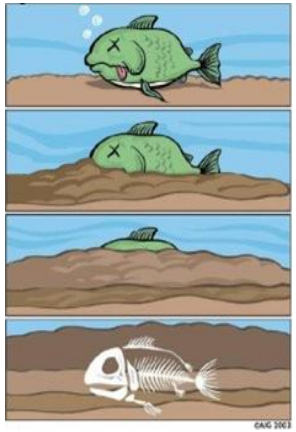
Key Terms	Definitions
Selective breeding	
Fossils	
Extinction	



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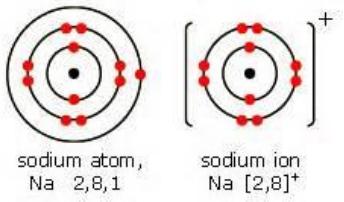
Year 9 Science: Bonding

Ions

All atoms of all elements react to get a full outer shell of electrons. **Metals** will lose electrons to get a full outer shell. **Non-metals** will gain electrons to get a full outer shell: An ion is an atom with a positive or negative charge, these are formed by an atom gaining or losing electrons. We represent ions with square brackets around the ion and the charge in the top right corner.



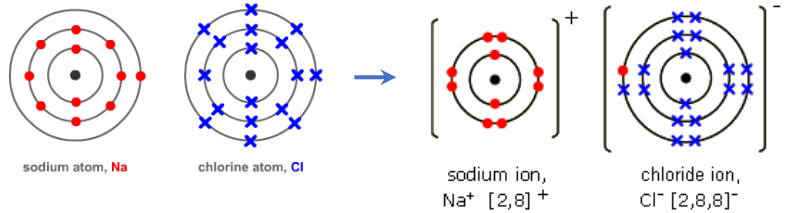
The **group number** indicates how many electrons an atom would have to lose or gain to get a full outer shell of electrons.

Group	What happens to the electrons?	Charge on ions
1	Lose 1	+1
2	Lose 2	+2
3	Lose 3	+3
5	Gain 3	-3
6	Gain 2	-2
7	Gain 1	-1

Key Terms	Definitions
metal	An element which loses electrons to form positive ions
non metal	An element which gains electrons to form negative ions
ion	An atom (or particle) with a positive or negative charge, due to loss or gain of electrons
ionic bond	A bond formed by the electrostatic attraction of oppositely charged ion
electrostatic	The force between a positive and negative charge.

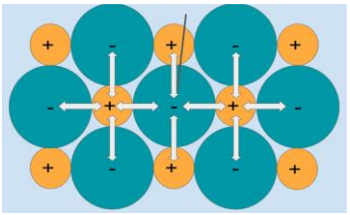
Ionic Bonding

When a metal atom reacts with a non-metal atom, electrons in the outer shell of the **metal atom are transferred to the non metal atom**. The metal now has a positive charge and the non metal has a negative charge. This means there is an **electrostatic attraction** between the two ions - this is what forms an ionic bond. Both atoms will have **a full outer shell.**



Giant Ionic Compounds

Opposite charged ions attract. Similarly charged ions repel. Ionic compounds form **giant ionic compounds due to the electrostatic forces** of attraction in all directions between oppositely charged ions.



Year 9 Science: Bonding

Ions

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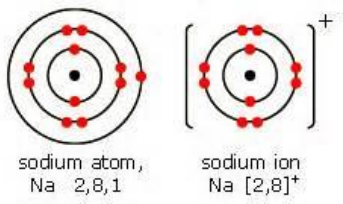

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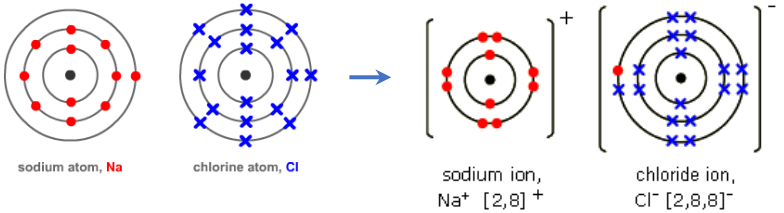
Group	What happens to the electrons?	Charge on ions
1		+1
2		+2
3		+3
5	Gain 3	
6	Gain 2	
7	Gain 1	

Key Terms	Definitions
metal	
	An element which gains electrons to form negative ions
ion	
	A bond formed by the electrostatic attraction of oppositely charged ion
	The force between a positive and negative charge.

Ionic Bonding

When a metal atom reacts with a …… atom, electrons in the outer shell of the **metal atom are** …… **to the non metal atom**. The metal now has a positive charge and the non metal has a negative charge. This means there is an **electrostatic** …… between the two ions - this is what forms an ionic bond. Both atoms will have **a full** …… …… .



Giant Ionic Compounds

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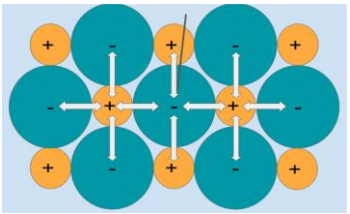
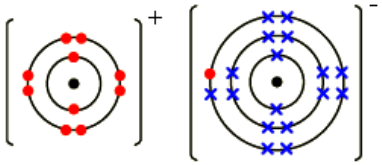


Year 9 Science: Bonding

Ionic Bonding- Models

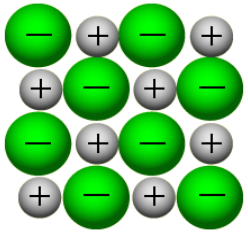
There are a number of ways we can represent ionic bonding all; of these have **advantages and limitations.**

Dot and cross diagrams- These show clearly how the electrons are transferred. It does not, however, show the 3D lattice structure of an ionic compound or that this is a giant compound.

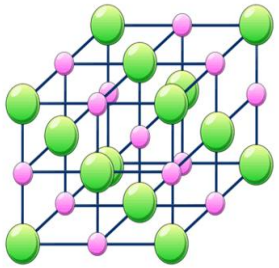


sodium ion, Na^+ [2,8] $^+$ chloride ion, Cl^- [2,8,8]$^-$

2D ball and stick model of ionic bonding
This has the advantage of showing that electrostatic forces exist between oppositely charged ions in an ionic compound. However, does not show the 3D structure of an ionic compound.



3D Ball and Stick model of ionic bonding
This clearly shows the 3D structure of the **ionic lattice** and how different ions interact with other ions **in all directions** to create an ionic lattice.



Key Terms	Definitions
ionic lattice	The regular 3D arrangement of ions in an ionic compound
giant	When the arrangement of atoms is repeated may times, with large numbers of atoms or ions
aqueous	When a substance is dissolved in water
empirical formula	The simplest ratio of atoms in a compound

Properties of Ionic compounds

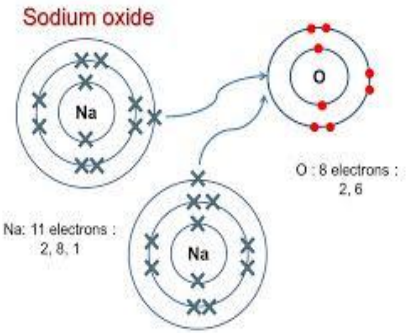
Ionic compounds have **high melting points, due to strong electrostatic forces between the oppositely charged ions.** This means a lot of energy is required to break these bonds.

Ionic compounds **do not conduct electricity** as a solid. They **do conduct electricity** if they are dissolved in water (aqueous) or in the liquid state.

This is because the ions are free to move, carrying the electric charge.

Empirical Formula of Ionic Compounds

In sodium chloride, 1 sodium atom transfers one electron to a chlorine atom, therefore the empirical formula is NaCl.



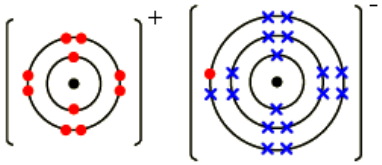
However, there are some examples where the ratio of atoms is not 1:1. For example when sodium bonds with oxygen, sodium only loses one electron but oxygen gains two.
So there are two sodium atoms for every oxygen, so the **empirical formula is Na_2O.**

Year 9 Science: Bonding

Ionic Bonding- Models

There are a number of ways we can represent ionic bonding all; of these have **advantages and limitations.**

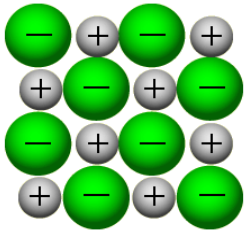
…….. diagrams- These show clearly how the electrons are transferred. It does not, however, show the 3D lattice structure of an ionic compound or that this is a giant compound.



sodium ion, Na^+ [2,8] $^+$ chloride ion, Cl^- [2,8,8]$^-$

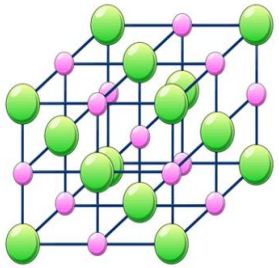
2D ball and stick model of ionic bonding

This has the advantage of showing that …… forces exist between oppositely charged ions in an ionic compound. However, does not show the ……. structure of an ionic compound.



3D Ball and Stick model of ionic bonding

This clearly shows the 3D structure of the **ionic lattice** and how different ions interact with other ions **in all ……** to create an ionic lattice.



Key Terms	Definitions
ionic lattice	The regular 3D arrangement of ions in an ionic compound
giant	When the arrangement of atoms is repeated may times, with large numbers of atoms or ions
aqueous	When a substance is dissolved in water
empirical formula	The simplest ratio of atoms in a compound

Properties of Ionic compounds

Ionic compounds have **high …… ……., due to strong electrostatic forces between the oppositely charged ions.** This means a lot of …… is required to break these bonds.

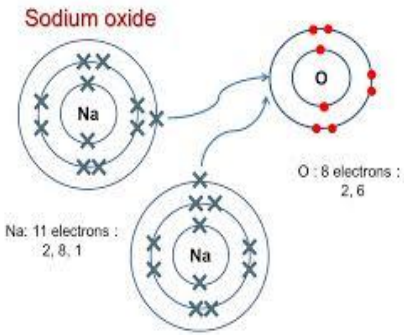
Ionic compounds **do not conduct electricity** as a …… . They **do conduct electricity** if they are dissolved in water (……..) or in the liquid state.

This is because the ions are free to move, carrying the electric …… .

This is because the ions are free to move, carrying the electric charge.

Empirical Formula of Ionic Compounds

In sodium chloride, 1 sodium atom transfers one electron to a chlorine atom, therefore the F3 empirical formula is NaCl.

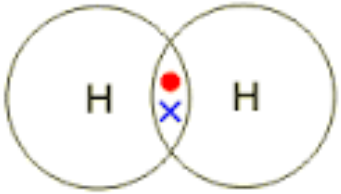


However, there are some examples where the ratio of atoms is not 1:1. For example when sodium bonds with oxygen, sodium only loses one electron So there are two sodium atoms for every oxygen, so the **empirical formula is Na_2O.**

Year 9 Science: Bonding

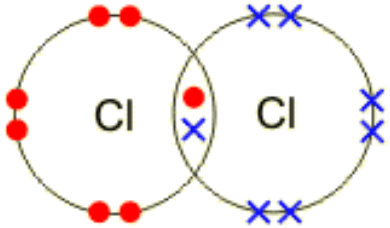
Covalent Bonding

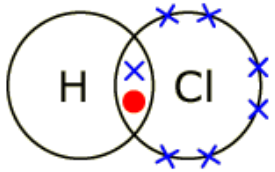
Covalent bonding occurs between atoms of non metal elements. E**lectrons are shared between the atoms**, so that they have a full outer shell. Covalent bonds are strong and require a lot of energy to break. Both hydrogen atoms have **one electron in their outer shell. Therefore both hydrogen atoms share one electron each,** to give them both a full outer shell.

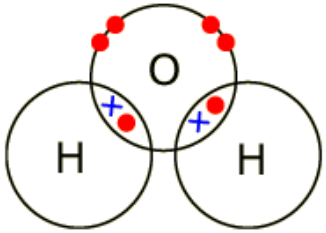


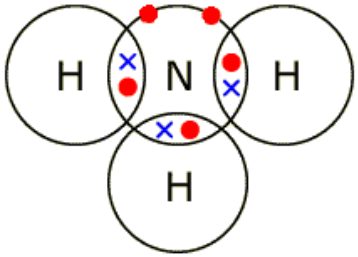
When drawing covalent molecules we use "dot cross diagrams" as we do with ionic compounds. It is important to represent the electrons on one atom with a dot and on the other atom with an X.

These examples of **chlorine, water, hydrogen chloride and ammonia (NH_3)** all share one electron per atom in a molecule to make a full outer shell of electrons on each atom.





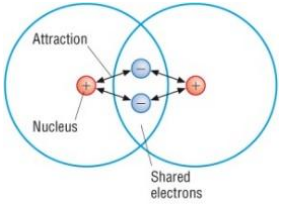




Key Terms	Definitions
covalent bonding	Bonding between 2 (or more) atoms where electrons are shared.
molecule	A substance which contains two or more covalently bonded atoms
lone pair	A pair of outer electrons that are not part of the covalent bond.

The Nature of a Covalent Bond

Covalent bonds are **strong** because there is electrostatic attraction between the electrons in the covalent bond and the positively charged nucleus. This means a lot of energy is required to break a covalent bond.

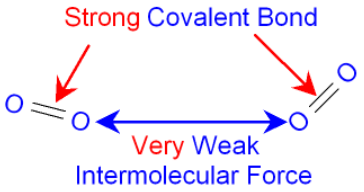


Properties of Simple Covalent Compounds

Simple covalent compounds have low melting and boiling points. They are often gases at room temperature: for example, **oxygen** and **carbon dioxide.**

Although the covalent bonds between the atoms are strong, the **intermolecular forces between the molecules are weak.**

This means that only a small amount of energy is required to overcome these weak forces.



Year 9 Science: Bonding

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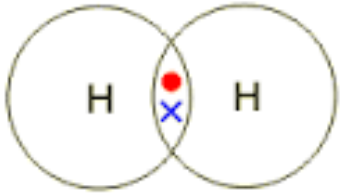

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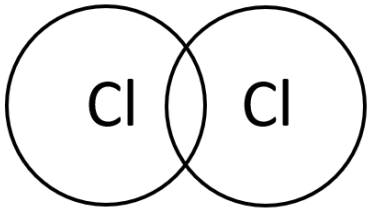

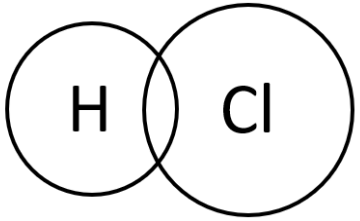

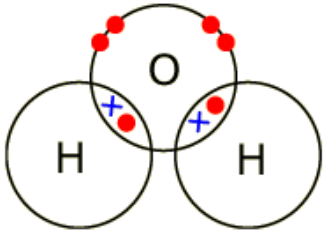

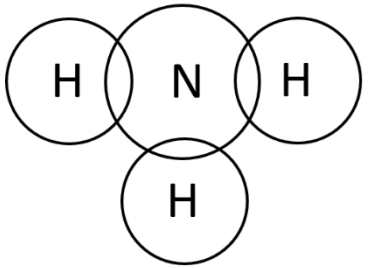

Key Terms	Definitions
covalent bonding	
molecule	
lone pair	

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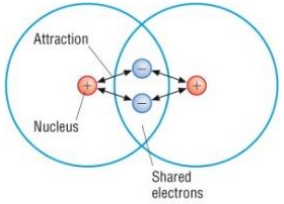

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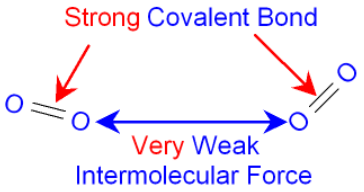
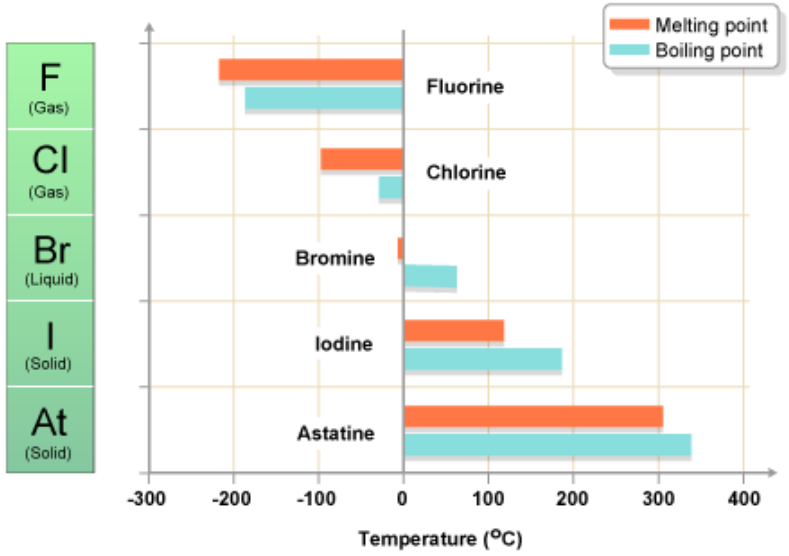


Year 9 Science: Bonding

Properties of Covalent Compounds-Continued

The size of the intermolecular force between molecules increases as the molecules get larger. For example, as you go down group 7, the boiling points increase because **the molecules get larger**.

On the graph below - the boiling point of fluorine is -188°C → a gas at room temperature, whereas the melting point of astatine is 302°C → a solid at room temperature. This is because the intermolecular forces between the larger astatine molecules are larger than between the **smaller fluorine molecules.**



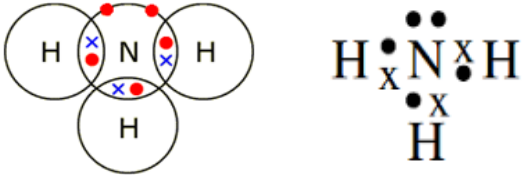
As well as having low melting points, covalent compounds **do not conduct electricity. T**his is because they have no free electrons or ions and therefore there is nothing to carry the electric charge**.** Pure water does not conduct electricity; only when it has ions dissolved in it will it conduct.

Key Terms	Definitions
polymer	A very large molecule, made from monomers
repeating unit	The shortest repeating section of a polymer
intermolecular forces	The force of attraction between two molecules

Representing Covalent Compounds

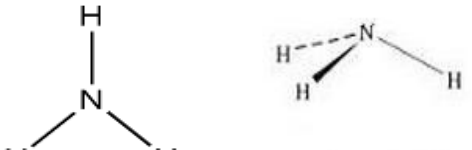
Like ionic compounds, there are variety of ways that scientists use to represent covalent compounds**.**

Dot cross diagram



There are two dot cross representations of ammonia shown above. The advantages of these diagrams are that it is very clear, which electrons are used in bonding and which are lone pairs. However it does not show the 3D structure of the molecule.

Ball and stick model



Ammonia (Ball and stick model)

A ball and stick diagram can either be 2D or 3D. While the 2D version clearly shows which atoms are bonded together, the 3D version gives the scientist more information about the 3D shape and the angles between the bonds in the molecule.

Year 9 Science: Bonding

Properties of Covalent Compounds-Continued

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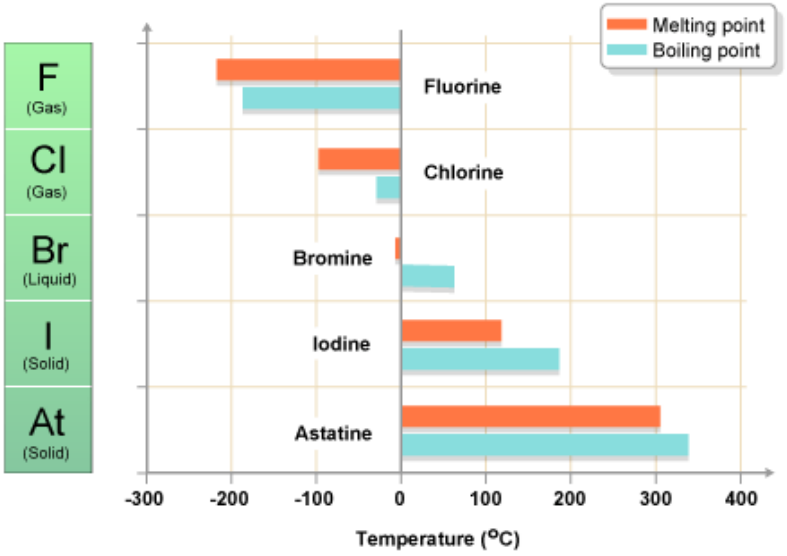

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	The shortest repeating section of a polymer
	The force of attraction between two molecules

Representing Covalent Compounds

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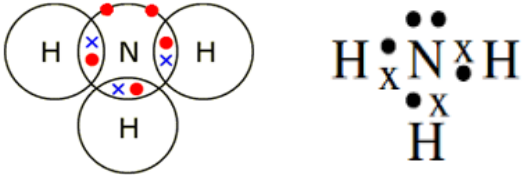
…… diagram



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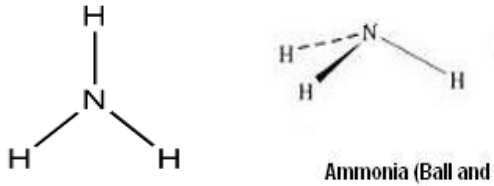

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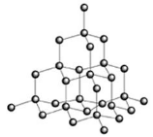
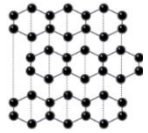
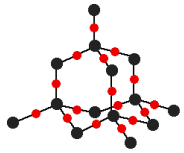
Year 9 Science: Bonding

Giant/Macro Covalent Compounds

In a giant covalent structure all atoms are bonded to each other by strong covalent bonds. Giant covalent compounds have a **high melting point** because many strong covalent bonds need to be broken and this requires a lot of energy.

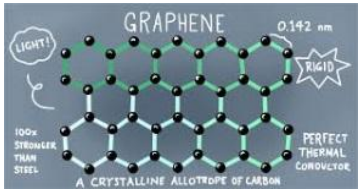
There are three examples you need to know, diamond, graphite and silica (see table below).

Key Terms	Definitions
giant covalent	Giant covalent structures contain a lot of non-metal atoms, each joined to adjacent atoms by covalent bonds
delocalised electron	An electron that is free, not part of an atom
allotrope	Different forms of the same element for example diamond and graphite are allotropes of carbon

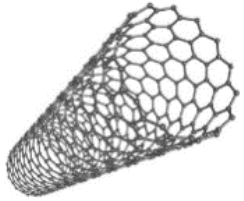
Substance	Diagram	Description	Properties
Diamond		Each carbon is covalently bonded to four other carbons	• Very hard • Very high melting point, due to strong covalent bonds between all the atoms • Does not conduct electricity.
Graphite		Each carbon is covalently bonded to 3 other carbons, there are weak (non covalent) bonds between the layers.	• High melting point • Conductor of electricity due to **delocalised electrons** between the layers • Slippery as layers can slide over each other
Silica (silicon dioxide)		Every silicon atom is bonded to 2 oxygen atoms and vice versa	• Strong • High melting point

Graphene and Fullerenes

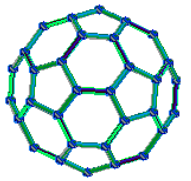
There are other forms of carbon which have been discovered recently: **graphene is a single layer of graphite** so it is 1 atom thick. Fullerenes are molecules of carbon with hollow shapes. The most famous example is Buckminsterfullerene (C_{60}). Fullerenes have use in drug delivery and as catalysts. Carbon nanotubes are cylinder shaped fullerenes, these are strong and are excellent conductors of both **heat and electricity.**



Carbon nanotube



Buckminsterfullerene



Year 9 Science: Bonding

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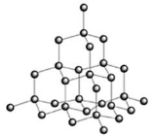
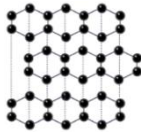
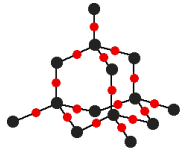
delocalised electron	
	Different forms of the same element for example diamond and graphite are allotropes of carbon

Substance	Diagram	Description	Properties
		Each carbon is covalently bonded to …… other carbons	• • Very high melting point, due to strong covalent bonds between all the atoms •
		Each carbon is covalently bonded to …… other carbons, there are weak (non covalent) bonds between the layers.	• • Conductor of electricity due to **delocalised electrons** between the layers •
		Every silicon atom is bonded to 2 oxygen atoms and vice versa	• Strong •

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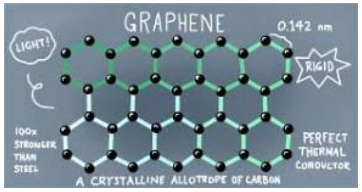
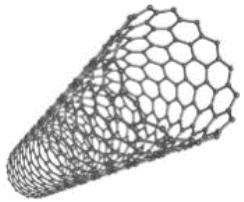
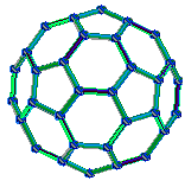


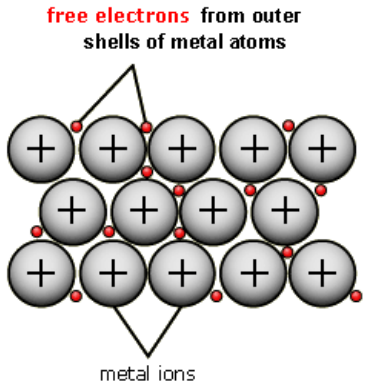
…… 

…… 

Year 9 Science: Bonding

Metallic Bonding

Metals form giant structures. The metal atoms form a regular pattern and the donate their outer electron to the **"sea of delocalised electrons".** These electrons are free to move. The 2D structure of metallic bonding looks like this:



This would be the structure of a group 1 metal like sodium, if it were a group 2 metal (e.g. magnesium) then the charge on the ions would be 2+.

Metals have high melting points because there are strong forces between the atoms. There is strong **electrostatic** attraction between the positive metal ions and the delocalised electrons.

The strength of this attraction means that more energy is required to overcome these forces.

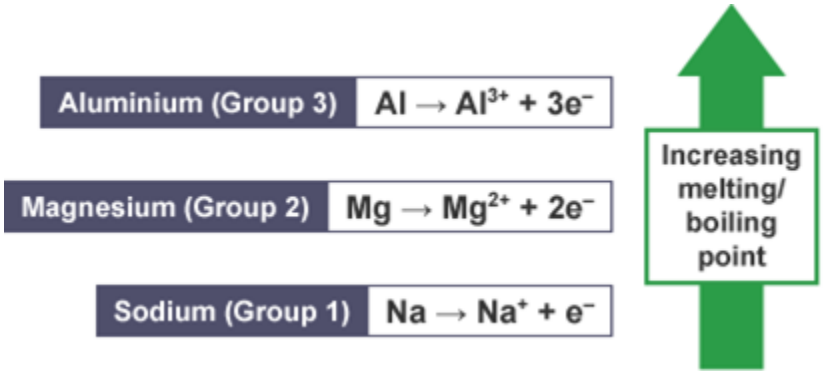
The greater the number of outer electrons, the higher the melting point. This is due to the increased positive charge of the metal ion.

Key Terms	Definitions
metallic bonding	A type of bonding which occurs only in metals
alloy	A mixture of 2 or elements, one of which is a metal (the other element may be metal or non metal)
delocalised electron	An electron that is free, not part of an atom
malleable	The ability of a material to be bent into shape.

Properties of Metals

Metals are **good conductors of electricity**, due to the delocalised electrons, which can carry the electric charge. Metals are also **good conductors of heat** as the free electrons can transfer the heat energy through the metal.

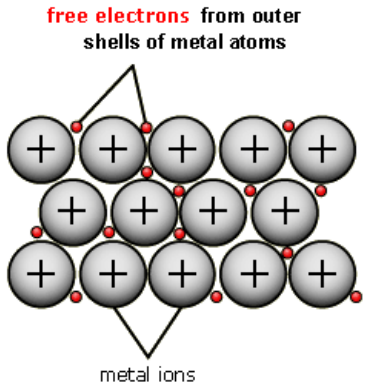
Metals are also **malleable** (bendy) as the layers of ions can easily slide over one another. This means that many pure metals are too soft for uses such as building.



Year 9 Science: Bonding

Metallic Bonding

Metals form giant structures. The metal atoms form a …… pattern and the donate their outer electron to the **"sea of …… electrons".** These electrons are free to move. The 2D structure of metallic bonding looks like this:



This would be the structure of a group 1 metal like sodium, if it were a group 2 metal (e.g. magnesium) then the charge on the ions would be 2+.

Metals have high melting points because there are strong forces between the atoms. There is strong …… attraction between the positive metal ions and the delocalised electrons.

The strength of this attraction means that …… energy is required to overcome these forces.

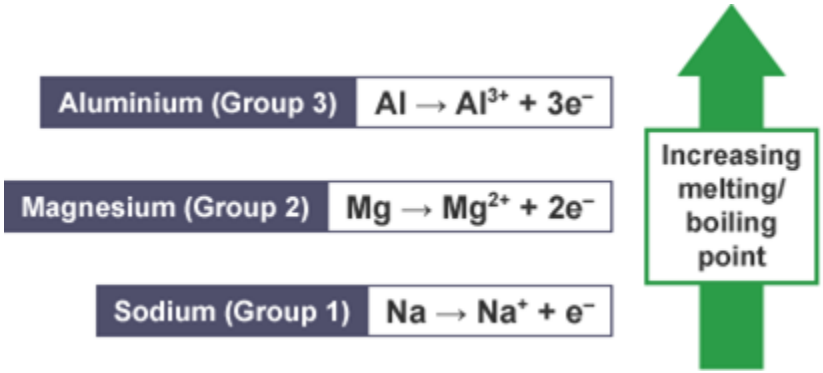
The greater the number of outer electrons, the higher the melting point. This is due to the increased positive charge of the metal ion.

Key Terms	Definitions
	A type of bonding which occurs only in metals
alloy	
	An electron that is free, not part of an atom
	The ability of a material to be bent into shape.

Properties of Metals

Metals are **good …… of electricity**, due to the delocalised electrons, which can carry the electric charge. Metals are also **good conductors of ……** as the free electrons can transfer the heat energy through the metal.

Metals are also …… (bendy) as the layers of ions can easily slide over one another. This means that many pure metals are too soft for uses such as building.

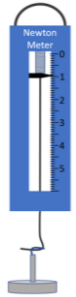


Year 9 Science: Applied Forces – the Basics

A force is a **push** or **pull** that acts on an object due to the interaction with another object.

When an **unbalanced force** acts on an object it can cause the object to:

- **change speed** (accelerate or decelerate)
- **change direction**
- **change shape** (squash or stretch the object



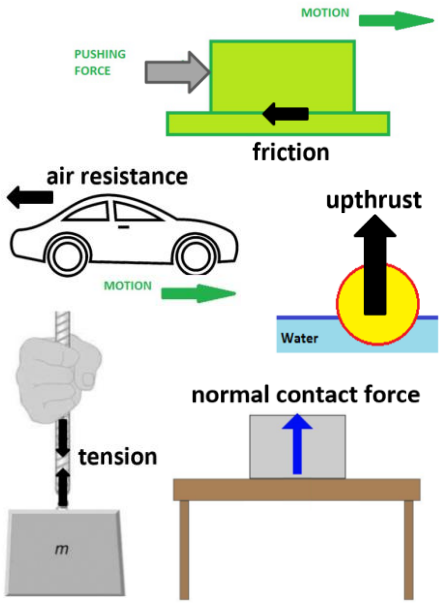
The size of a force can be measured using a **newton meter**.

The unit of force is the **newton (N)**.

Forces can be divided into 2 types:

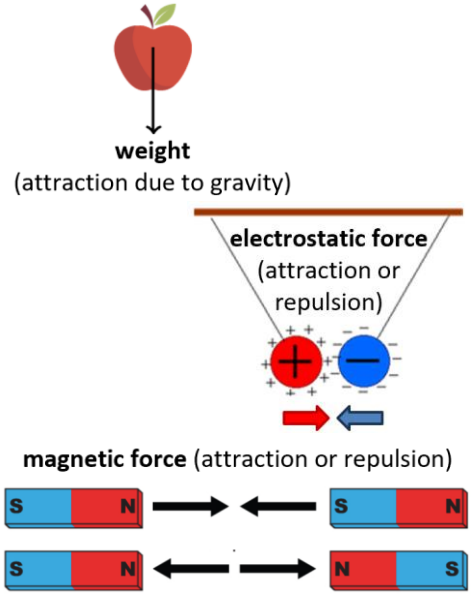
contact forces

act between objects or particles **that are touching**, eg

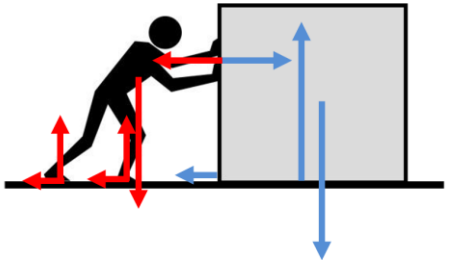


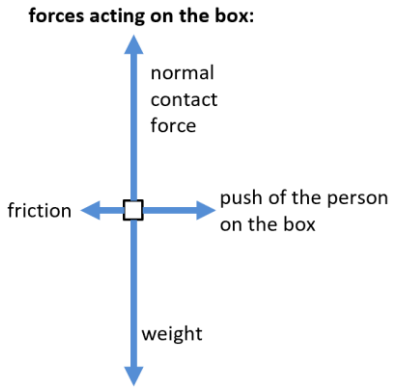
non contact forces

act between objects **even if they are NOT touching**, eg



Free body force diagrams simplify complex situations by focusing on the forces acting on just one object at a time.





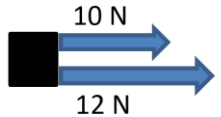
- The object is drawn as a box or dot.
- Only the forces acting on the object are shown.
- The size and direction of the arrows represent the size and direction of the force.

The **resultant force** acting on an object is the single, overall force that acts on an object, found by adding up all individual forces acting on it. To find resultant force you:

- add up forces acting in the same direction
- subtract forces acting in the opposite direction

Unbalanced forces give a resultant force, which has a **magnitude** (size) and a **direction.**

Resultant force
10 – 8 = 2N



Resultant force
10 + 12 = 22 N

Resultant force
10 – 10 = 0

Balanced forces mean that there is no resultant force.

work done by a force (J) = force (N) x distance moved (m)
(in the direction of the force)

W = F x d

Year 9 Science: Applied Forces – the Basics

A force is a **push** or ..... that acts on an object due to the interaction with another object.

When an **unbalanced force** acts on an object it can cause the object to:

- **change** ..... (accelerate or decelerate)
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The size of a force can be measured using a .....

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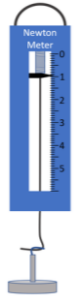

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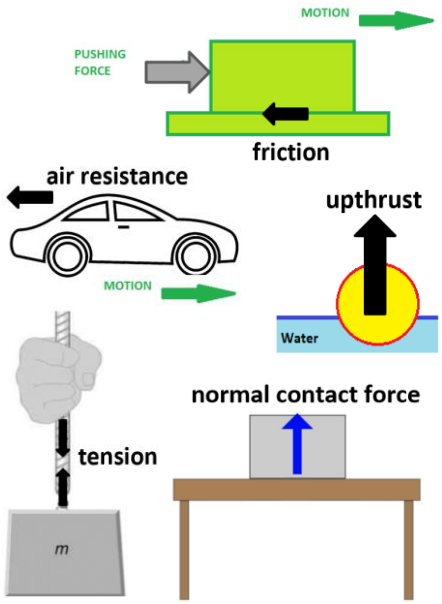

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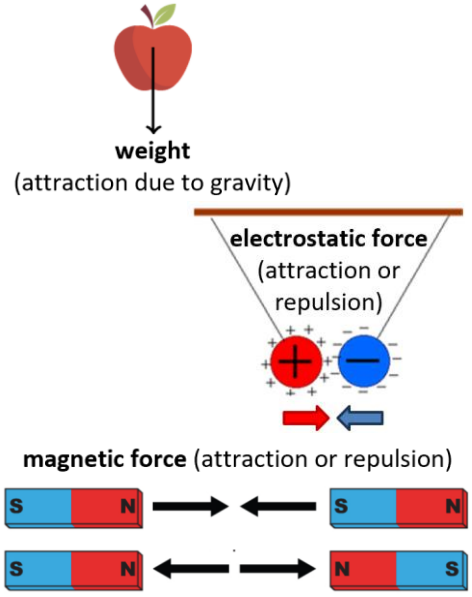
act between objects **even if they are NOT touching**, eg



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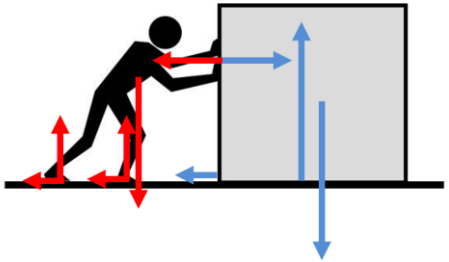

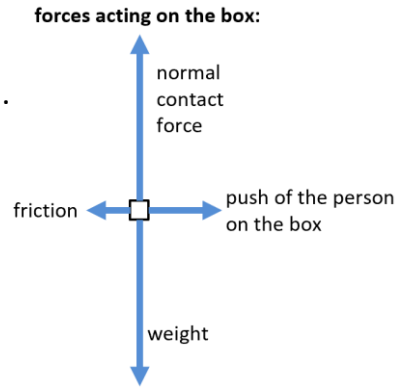

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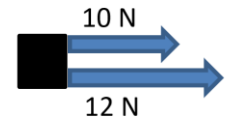

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(in the direction of the force)

W = ... x .....

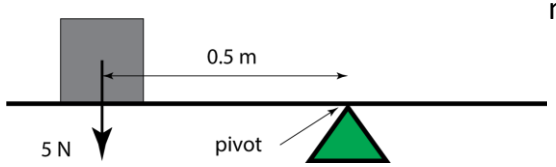
Year 9 Science: Applied Forces – Moments and Levers

A moment is the turning effect of a force around a fixed point or **pivot**.

moment = force x distance of the force from the pivot M = F x d

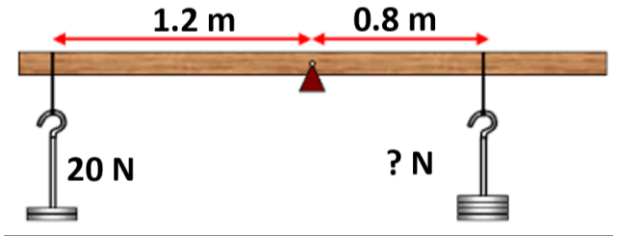
- the force is measured in newtons (N)
- the distance is usually measured in metres (m)
- so the unit for the moment is usually newton-metres (Nm)

Moments also have a direction of rotation – either clockwise or anticlockwise.



moment = F x d
= 5 x 0.5
= 2.5 Nm
anticlockwise

The law of moments (also called the principle of moments) states that for an object to be in **equilibrium** (balanced), the total clockwise moment must equal the total anticlockwise moment around a pivot.



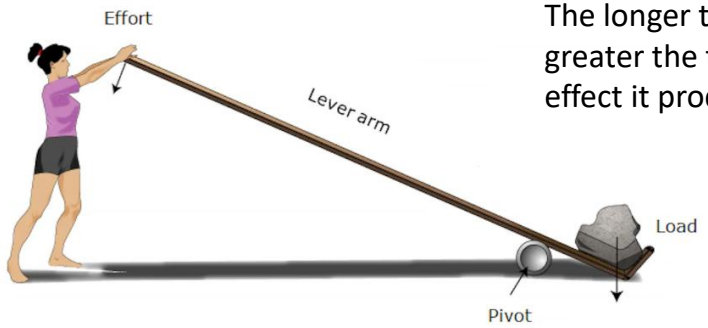
The balance beam above is in equilibrium.
Calculate the missing force.

anticlockwise moment:
M = F x d
M = 20 x 1.2
M = 24 Nm
so the clockwise moment = 24 Nm

clockwise moment:
M = F x d
24 = F x 0.8
24 ÷ 0.8 = F
F = 30 N

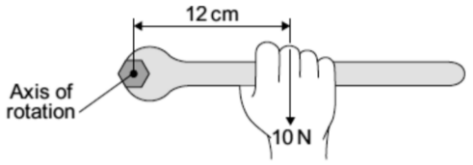
Key terms	Definitions
Pivot	A point around which something can rotate.
Moment	The turning effect of a force.
Newton-metre (Nm)	The usual unit for the moment of a force.
Equilibrium	When an object is not rotating due to balanced moments acting on it.
Simple machine	A basic mechanical device that changes the direction or size of a force to make work easier.
Lever	A simple machine that can be used to multiply the effect of a force.

Levers are known as **force multipliers** because they increase the turning effect of the force by increasing its distance from the pivot point.



The longer the lever, the greater the turning effect it produces.

Holding this spanner further from the nut would mean that a smaller force can be used to do the same amount of work. However, the force will need to be moved further.



Year 9 Science: Applied Forces – Moments and Levers

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moment = force x distance of the force from the pivot M = F x d

- the force is measured in …… (……)
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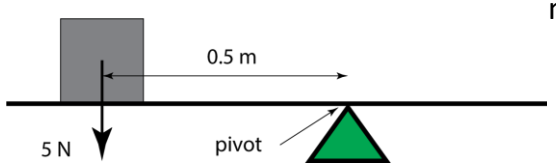

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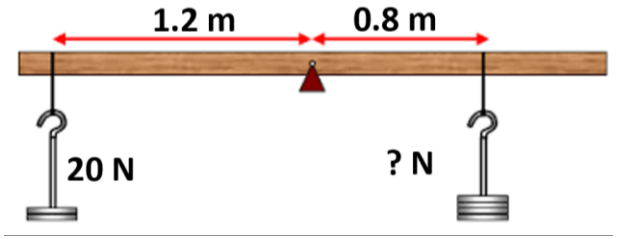

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Calculate the missing force.

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M = …… x ……
M = ……
so the clockwise moment = ……

clockwise moment:
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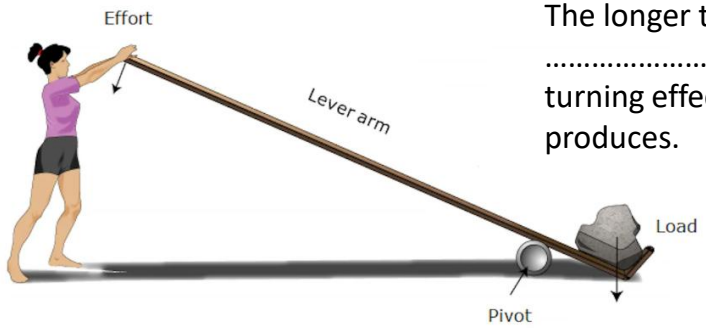
…… = F x ……
…… ÷ …… = F
F = ……

Levers are known as **force** …… because they increase the turning effect of the force by increasing its distance from the pivot point.



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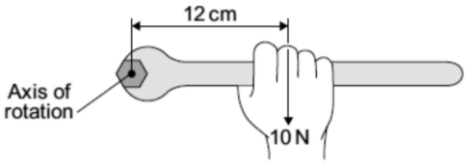
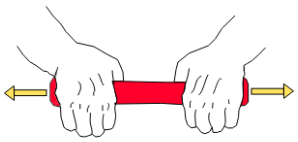
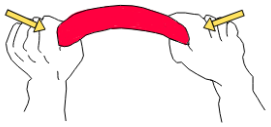


Year 9 Science: Applied Forces – Elasticity and Stretching

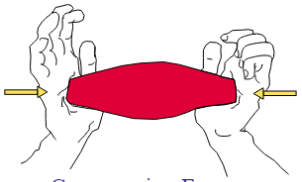
To change the shape of an object, there must be more than one force acting on it.



Tension Forces



Bending Forces

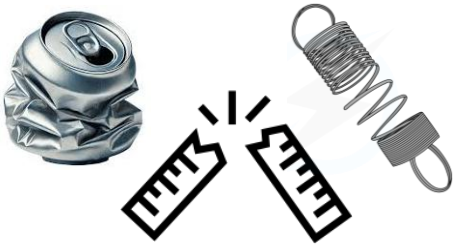


Compression Forces

When objects change their shape, we say they are **deformed**.

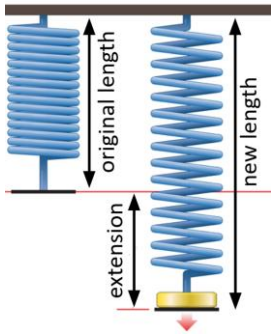
Objects that are **elastically deformed** will spring back into their original shape after the forces are removed.

Objects that are **inelastically deformed** do not return to their original shape after the forces are removed. This is also known as plastic deformation.

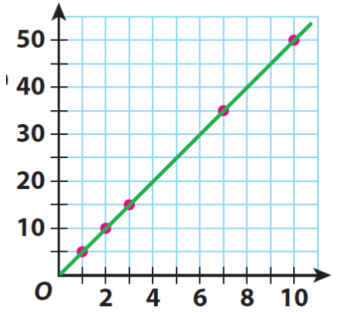


Key terms	Definitions
Deform	To change the shape of an object.
Elastic	Describes materials that can be extended or compressed by forces, and that return to their original shape when the forces are removed.
Inelastic (plastic)	Describes materials that don't go back to their original shape after they've been deformed.
Extension	How much an elastic object has been stretched.
Hooke's Law	When stretching a spring, the force applied to the spring is directly proportional to the extension of the spring.
Directly proportional	The mathematical relationship between variables where, when the independent variable doubles, the dependent variable doubles too.

extension
= new length – original length



directly proportional:
when one variable doubles, the other also doubles.

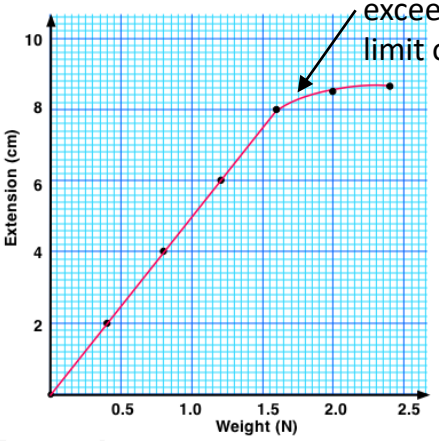


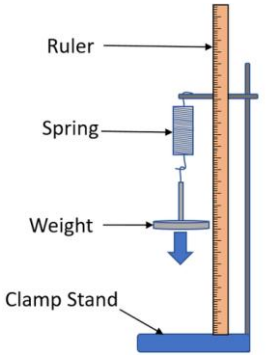
Investigation - Hooke's Law

independent variable = the amount of weight

dependent variable = the extension of the spring

control variables = the spring being stretched



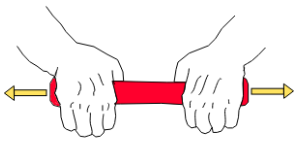


Robert Hooke discovered that springs extend in a predictable way when forces are added.

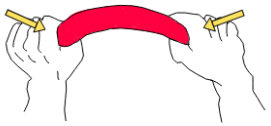
The weight on the spring and the extension of the spring are directly proportional, so long as the spring is not stretched too much!

Year 9 Science: Applied Forces – Elasticity and Stretching

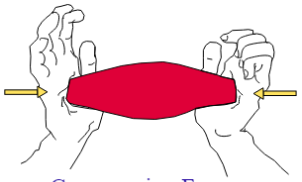
To change the shape of an object, there must be more than ..... force acting on it.



Tension Forces



Bending Forces



Compression Forces

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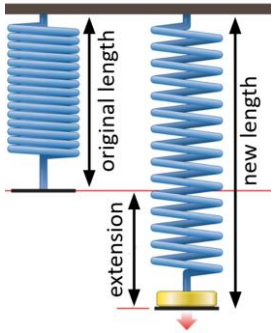
.....

= new length – original length



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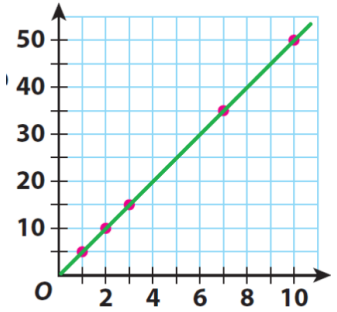

Key terms	Definitions
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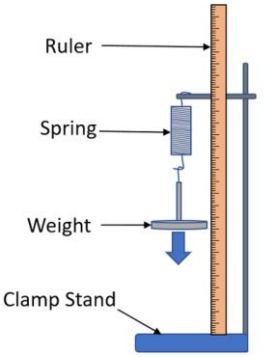
Directly proportional	The mathematical relationship between variables where, when the independent variable ..... , the dependent variable ..... too.

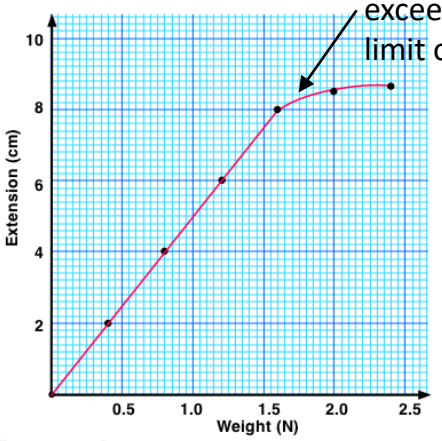
Investigation - Hooke's Law

independent variable = ...

dependent variable = ...

control variables = the spring being stretched





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The weight on the spring and the extension of the spring are .... , so long as the spring is not stretched too much!

Year 9 Geography
Global Resources

What is a global resource?

Resource – a stock or supply of something

Natural Resource – a stock or supply of something that occurs naturally e.g. wood

Examples of natural resources

Energy
Oil/coal/gas/wind/soil/nuclear

Water
Soil
Minerals
Forest

HIC- High Income Country
LIC- Low Income Country
NEE- Newly Emerging Economies
Supply – where things are found
Consume – to use
Resource security- people have enough of a resource e.g. water
Resource insecurity- people don't have enough of a resource to survive

Why are Natural Resources important?

Economically

Global resources can be traded to make a country who has them develop economically
e.g. selling oil to other countries

Socially

People within the country will have access to resources and therefore a better quality of life
e.g. access to clean fresh water improves life expectancy

CASE STUDY
Oil Shales – Canada, North America

Oil can be extracted from tars and fields

Key Facts

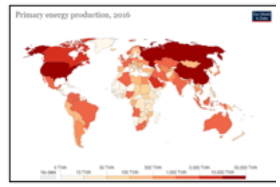
19% of US oil supply is from Canada
250,000 tonnes produced daily
200,000 tonnes of water used daily

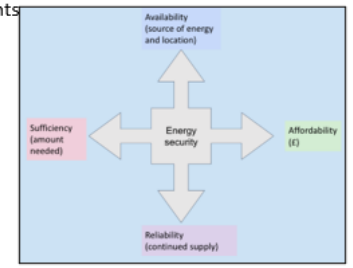
Impacts

Oil leaks into the Athabasca River
Mutations, tumours and deformed fish species
Carbon dioxide footprint greater than New Zealand and Kenya combined

Energy Security-

The ability of a nation to secure sufficient, affordable and consistent energy supplies for its domestic, industrial, transport and military requirements





Renewable = A natural resource such as tidal or solar energy that will be remade by the environment (infinite).

Non-renewable = Sources of energy such as coal, oil or natural gas- that cannot be 'remade', so they can run out (finite).

Factors that affect energy supply

Cost to exploit
Some energy sources such as oil are hard to extract

Physical factors
Geology of an area determines the location and availability of fossil fuels. Water flow changes availability of hydroelectricity. Geothermal energy is affected by tectonic plate location

Political Factors
Some countries politically do not agree with each other and therefore trade of resources is not possible

Factors that affect energy consumption

Economic development
HICs use far more energy than LICs e.g. more cars/electricity use/heating

Population increase
The larger the population the more energy is used e.g. China and India both have population of over 1 billion

Where can fresh water be found

Glaciers
Lakes
Rivers
Groundwater

3% of water on Earth is fresh water

Reasons fresh water is important

Drinking water
Watering crops
Irrigation
Cooling down factories
Hydroelectric Power

Factors that affect water supply – natural

Climate – arid climate does not have as much fresh water
River systems – some countries have more rivers than others
Geology – permeable rocks can store water as aquifers

Factors that affect water supply – human
Pollution – pollutants from industrialisation
Over abstraction – taking too much water out of the ground

Year 9 Geography
Global Resources

What is a global resource?

Resource –

Natural Resource –

HIC-
LIC-
NEE-
Supply –
Consume –

_____- people have enough of a resource e.g. water

_____- people don't have enough of a resource to survive

Why are Natural Resources important?

Economically

Global resources can be traded to make a country who has them develop economically
e.g.

Socially

People within the country will have access to resources and therefore a better quality of life
e.g.

Examples of natural resources

1
2
3
4
5

Where can fresh water be found

1
2
3
4

Factors that affect water supply – natural

Climate =

River systems=

Geology =

Reasons fresh water is important

1
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Factors that affect water supply – human
Pollution –
Over abstraction –

Explain the Factors that affect energy supply
Cost to exploit

Physical factors

Political Factors

Explain the Factors that affect energy consumption
Economic development

Population increase

CASE STUDY
Oil Shales –

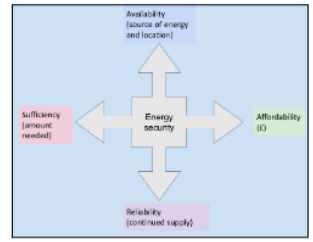
location=_____

Oil can be extracted from tars and fields

Key Facts
1
2
3
Impacts
1
2
3

Renewable =

Non-renewable =



Energy Security-

CASE STUDY

Grand Ethiopian Renaissance Dam – Managing water insecurity

Key Facts

River Nile is in East Africa, flowing South to North

River Nile runs through 11 countries

Transboundary resource = A resource that is shared between two or more countries

History

Egypt has historically had the power in water agreements, leavings countries like Sudan and Ethiopia with less rights to the water running through their countries.

The GERD

Built in in 2011 in Ethiopia on the border with Sudan

Advantages

Hydroelectric power for Ethiopia - which had 69% of its population was without electricity, and will be able to sell on the reserves to other neighbouring countries.

Irrigation for crops in Ethiopia

Can control river flow to reduce flooding in Ethiopia and downstream in Sudan

Increase water security for Ethiopia with its rising population and increasing development.

CASE STUDY

Grand Ethiopian Renaissance Dam – Managing water insecurity

Key Facts

1

2

Transboundary resource =

History

The GERD

Advantages

1

2

3

4

Disadvantages

1

2

3

Year 9 Geography Global Economy

An economy = the range of human activities concerned with the production, distribution and consumption of goods and services.

Trade is the **buying** and **selling** of goods & services.

International trade is the buying and selling of goods & services **between countries**.

Countries typically **specialise** in a good or service to trade in, for example **Germany specialise in cars, Russia can grow potatoes very well, Spain apples**.

Exports are when you sell goods or services to another country.

Imports are when you buy goods or services from another country.

The UK mostly trades with HIC's in Europe as well as the USA. They trade with HIc's due to having similar cultures and lifestyles so consumer habits are the same and proximity and closeness helps make trade cheaper and faster.

Services can be trades as well as goods, including design plans, websites and sharing research and ideas (quaternary and tertiary sector services)

Container ships are getting bigger and bigger (up to 400m long)
– In Feb 2020 a ship carried 24,000 containers.

This means that:

More goods and commodities can be transported and traded in larger amounts

The cost of transporting (shipping) goods decreases due to **economies of scale** (the more you trade, the cheaper you can sell it for/make more profit!). Cheaper transport costs will mean more trade!

Primary sector = extracting natural resources from the land and sea.

Secondary sector = manufacturing (making) things from raw materials.

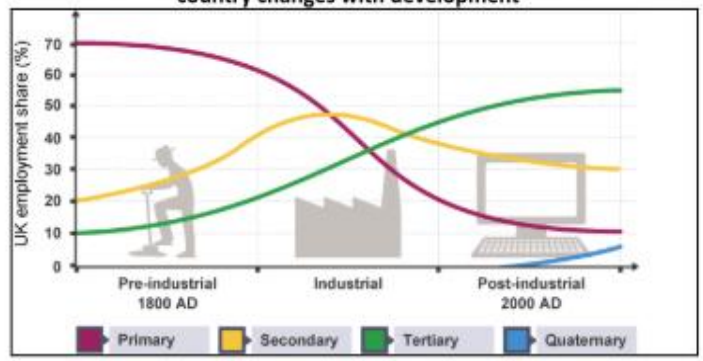
Tertiary sector = providing a service to others.

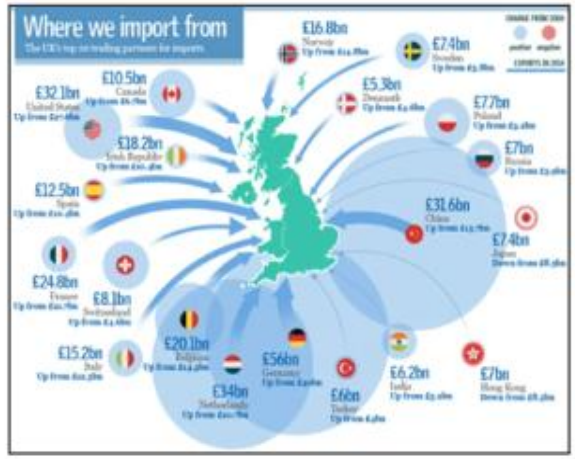
Quaternary sector = research and development of new technologies, ideas, or ways of doing things.

International trade example: Guatemalan coffee beans produced in Guatemala and exported to the USa. More primary and secondary industry in NEE and tertiary and quaternary sector industry in HIC(USA)

The Clark-Fisher Model

Shows how the employment structure of a country changes with development





Physical factors affecting international trade

Proximity (closeness) and isolation to other countries

Landlocked (more difficult to trade historically) or coastal (ports and shipping route access)

Political factors affecting international trade

Tariffs- a tax on import

Quotas- A hard limit on how much of a product a particular country can import.

Subsidies- A broad term that covers various actions a government could take to financially boost an industry.

Embargoes/sanctions: When a country limits or entirely prevents trade with another country.

Trade bloc - a group of countries that work together to provide special deals for trading, e.g. the European Union (EU).

TNC = Transnational Corporation (operate in more than one country)
Origin country - where TNC started up **Host country -** where TNC operates in

TNCs usually base their tertiary & quaternary sector work in HICs, as they can employ more educated and skilled workers, but will invest in primary & secondary sector work in NEEs & LICs to take advantage of:

- cheap raw materials
- cheap labour supply

TNCs will be especially keen to invest in countries which already have:

- good transport infrastructure (roads, railways, ports, airports).
- access to markets (e.g. Trade Blocs) where the goods are sold.
- friendly government policies (e.g. low tariffs and taxes).

Reasons for the global growth of TNCs

More relaxed rules and laws (environment, lower tax etc.)

To **access markets (emerging)** to increase sales

Cheaper land costs

To **gain grants and other rewards** (**tax breaks**) from governments

To get access to raw materials and resources (and cheaper ones or ones available all year round)

To **operate inside local trade barriers**, such as **tariffs** and **quotas**. To get inside trade blocs

Cheaper labour!

To **access skilled labour**/talent needed

To **reduce risk** by having branches in lots of different countries

Positive Impacts of TNCs

- Inward investment by TNCs helps countries by providing new jobs and skills for local people.
- TNCs bring wealth and foreign currency to local economies when they buy local resources, products and services. The extra money created by this investment can be spent on education, health and infrastructure.
- The sharing of ideas, experiences and lifestyles of people and cultures. People can experience foods and other products not previously available in their countries.
- Globalisation (economic and social links across the world) increases awareness of events in faraway parts of the world. For example, the UK was quickly made aware of the 2004 tsunami and sent help rapidly in response.
- Globalisation may help to make people more aware of global issues such as deforestation and climate change, alerting them to the need for humans to pursue more sustainable development.

Negative Impacts of TNCs

- TNCs operate mostly in the interests of the richest countries, which continue to dominate world trade at the expense of developing countries. The role of lower income countries in the world market is mostly to provide the HICs with cheap labour and raw materials.
- There are no guarantees that the wealth from inward investment will actually benefit the local community. Often, profits are sent back to the HIC where the TNC is based.
- TNCs, with their massive economies of scale, may drive local companies out of business.
- If it becomes cheaper to operate in another country, the TNC might close down the factory and make local people redundant.
- An absence of strictly enforced international laws means TNCs may operate in host countries in a way that would not be allowed in an HIC, e.g. polluting the environment, running risks with safety, or imposing poor working conditions & low wages on local workers.
- Industry may begin to thrive in host countries at the expense of jobs in manufacturing in the HICs (e.g. the UK), especially in textiles (clothes manufacturing).

TNC case study **Apple:**
Headquarters: California, USA
Manufacturing (secondary sector jobs): Foxconn, Zhengzhou, China (NEE)
Reasons why manufacturing is not in USA (HIC)

Lower wages
High number of workers
Land is cheaper to buy
Lower environmental laws (e.g. on pollution)
Direct access to global markets
Avoid trade restrictions

Positives for the **origin** country (USA)

Receives profits
Jobs in Apple as quaternary sector (e.g. software development and programming)

Negatives for **origin** country (USA)

Lost manufacturing jobs when factories were outsourced

Positives for **host** country (China)

Jobs for locals, income
Trading recognition in global markets
Boost countries economy

Negatives for **host** country (China)

Poor working conditions for workers (minimum pay for 60 hour weeks)
Environmental pollution and degradation of the land
Don't receive lots of profits as money gets sent back to the USA
No job trajectory (factory workers can't work their way up to tertiary or quaternary jobs easily)

Year 9 Geography Global Economy

An economy =.

Trade is the _____ and _____ of goods & services.

International trade is

Countries typically **specialise** in a good or service to trade in, for example

Exports are

Imports are

The UK mostly trades with HIC's in Europe as well as the USA. They trade with _____ due to

Services can be traded as well as goods, including…

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– In Feb 2020 a ship carried 24,000 containers.

This means that:

1.

2.

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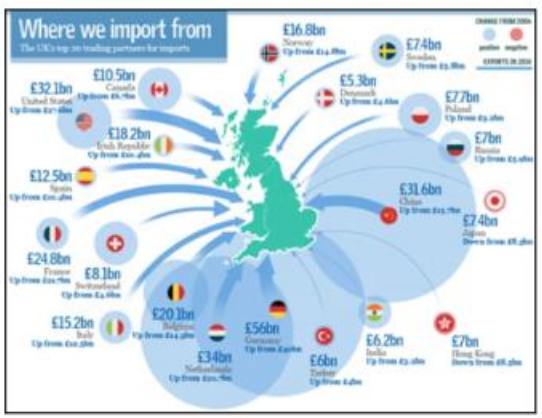
Secondary sector =

Tertiary sector =.

Quaternary sector =

International trade example:



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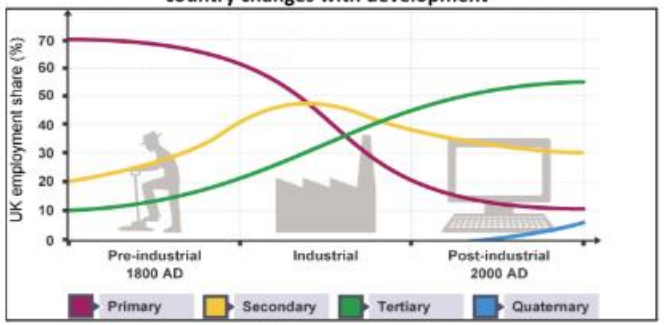

Physical factors affecting international trade

1.

2.

Political factors affecting international trade

Tariffs-

Quotas-

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Embargoes/sanctions:

Trade bloc -

TNC =
Origin country -
Host country -

TNCs usually base their tertiary & quaternary sector work in _____ , as they can employ more _____ _____ _____ , but will invest in primary & secondary sector work in _____ to take advantage of:

1.

2.

TNCs will be especially keen to invest in countries which already have:

1.

2.

3.

Positive Impacts of TNCs

1

2

3

4

5

Negative Impacts of TNCs

1

2

3

4

5

6

Reasons for the global growth of TNCs

1
2
3
4
5
6
7

TNC case study **Apple:**
Headquarters: _____ _____
Manufacturing (secondary sector jobs):_____ _____ _____ _____
Reasons why manufacturing is not in USA (HIC)
1
2
3
4
5

Positives for the **origin** country (USA)
1
2
Negatives for **origin** country (USA)
1

Positives for **host** country (China)
1
2
3
Negatives for **host** country (China)
1
2
3
4

Key Chronology

1882 - Triple Alliance (Italy, Germany, Austria Hungary)

1894 - Russia and France form an alliance

1904 - Britain joins an alliance with France (Entente Cordiale)

1905-06 - First Moroccan Crisis

1911 - Agadir Crisis (Second Moroccan Crisis)

1907 - Britain signs an alliance with Russia and France (Triple Entente)

1908 - Austrian annexation of Bosnia and Herzegovina

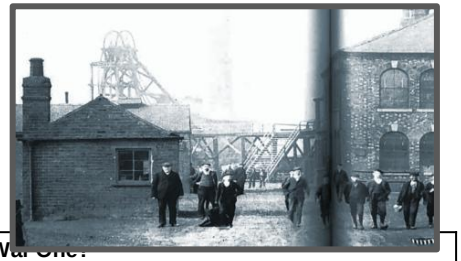
28 June 1914 - Assassination of Archduke Franz Ferdinand

4 August 1914 - Britain declares war against Germany

Was militarism the most significant cause of World War One?

Life in Edwardian Britain:

- Britain was industrious (highly productive) by 1900
- Britain had extensive railways ((over 18000 miles)
- Children had to go to school
- There were LIberal Reforms (Government changes) aimed at improving life for people like Free School Meals and pensions



Was militarism the most significant cause of World War One?

Imperialism (belief in colonising)

Case Study: Moroccan Crisis
Kaiser's 'Weltpolitik'

The Kaiser of Germany wants to expand and compete with other European nations.

In 1905 the Kaiser (Germany) wants Morocco to rebel against the French.

In 1911 the Kaiser sends the 'Panther' dreadnought to Agadir as support for the Moroccans. The British arrived to scare it off.

Historian: Karl Marx: *"Wars are a product of greedy and aggressive Empire getting competitive"*

Militarism (belief in strong army)

Case Study: Naval Arms Race: Britain vs Germany
1906: Germany 0 Dreadnoughts
1906: Britain 1 Dreadnoughts
1911: Germany 17 Dreadnoughts
1911: Britain 29 Dreadnoughts

Historian: Zara Steiner
"A real effort was made to teach boys that success in war depended on military spirit"

Alliances (political and military allegiance to another country)

Case Study:
- Britain, France, Russia and Serbia are the **Triple Entente 1907**
- Germany, Austro-Hungary and Italy are the **Triple Alliance 1992**

Historian: Gerhard Hirschfeld
"The decision to go to w resulted from stubborn commitments to go to w

July 28, 1914	Austria-Hungary declares war on Serbia.
August 1, 1914	Germany declares War on Russia.
August 3, 1914	Germany declares war on France.
August 4, 1914	Britain declares war on Germany.
August 6, 1914	Austria declares war on Russia.

Nationalism (belief in your nation's survival)

Case Study: Austro-Hungary

Austro-Hungarians ruled over hundreds of cultures, languages and nationalities. They invaded Bosnia in 1908 which was full of Serbs. Serb nationalists (Black Hand) wanted independence - 'unification or death'. They murdered the heir to the Austro throne in June 1914.

Historian: Richard Evans
" Serbia bore the greatest responsibility for the outbreak of the war!"

Short Term Cause of WWI : June 28 1914

Archduke Franz Ferdinand is the heir to the Austro Hungarian Empire

The Austro-Hungarians invade Bosnia in 1908

This angers the Serbs who are living there who don't want to be ruled by the Austro-Hungarians

A terrorist group (Black Hand) assassinate Franz Ferdinand and his wife

Austria-Hungary declares war on Serbia

Russia declares war on Austria-Hungary

Germany declares war on Russia

France declares war on Germany

Germany invades Belgium

Britain declares war on Germany.

Key Chronology

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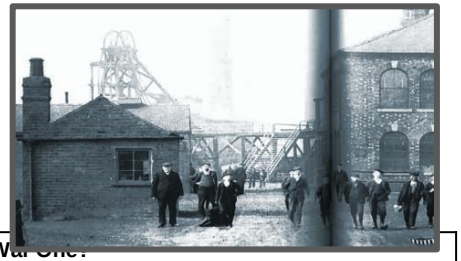

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_____ (belief in colonising)

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Kaiser's _____

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1906: Germany 0 _____
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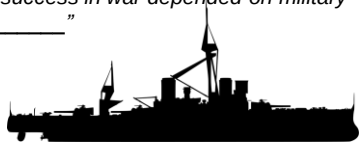
1911: Germany _____ Dreadnoughts
1911: Britain _____ Dreadnoughts

Historian: _____
"A real effort was made to teach _____ that success in war depended on military _____ "



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Germany declares war on _____

_____ declares war on Germany

Germany invades Belgium

Britain declares war on _____.

Year 9 History Knowledge Organiser: How did experiences in World one vary?

Public response to War in 1914

- The public responded patriotically and enthusiastically to war in 1914
- **Kitchener** persistent persuasiveness encouraged men to sign up with their friends. These were called '**pal's battalions'**
- Recruiters used guilt and Patriotic/national duty to persuade recruits.

By January 1916:
Conscription introduced: reality of war sunk in: by **January 1916** all unmarried men between 18-41

Diverse British Army

- 1.5 million Indians
- 1.3 million Australians, New Zealanders and Canadians
- 15'204 Black officers from the West Indies
- 60'000 South Africans
- 120'000 Africans (Gold Coast, Sierra Leone, Gambia)

Women in WW1

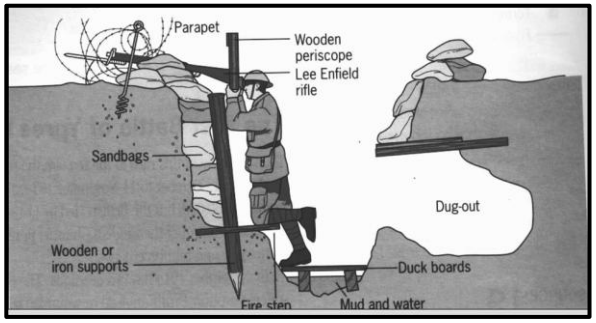
- Took on roles such as window cleaners,nurses, bus drivers, working with farmers
- Women recruited to **munitions** producing arms and shells (950,000 by 1918)

- Some women died of diseases such as toxic jaundice, others from explosions
- Initially women were paid less but an agreement was made that they would be paid the same as the men (the men would have their jobs back after the war)

Battle of the Somme 1st July 1916 - November 1916

Cause	• Frontline at stalemate • France struggling to keep **Verdun** from being invaded by the Germans • Attacking Germans at some would relieve pressure at verdun
Event	• British launched the Somme offensive on 1st July 1916 at 7:30am • Allied troops (British) went over the top • Germans already knew about the offensive • 7:28am, the Germans detonated a huge mine • Battle lasted five Months
Cons	• After the first day, 57'000 Commonwealth soldiers were dead, missing or injured • 1 million people from both sides have been killed or injured.

Success at the Somme?	Failure at the Somme?
•Damaged German morale •The Germans were forced to strategically retreat (give up land they had won) to the Hindenburg Line (well-built trenches) in March 1917 •Britain had lost 420,000 men by the end of the campaign, whereas Germany lost 500,000	•57,470 Allied soldiers had died at the end of the first day, compared to 8000 German soldiers. •88,000 Allied (British and French) soldiers died for every mile gained. •Britain had lost a 'whole generation', the 'cream of Edwardian youth' •The British and French line only advanced around 12 kilometres in four months



Life inside the trenches

- Trenches were seen as a temporary measure but became permanent
- Soldiers were only able to sleep for a short-amount of time
- Flies move from corpses to bodies and spread disease
- Water tasted of petrol
- The food was terrible
- Artillery shells and sniper's bullets were dangerous
- You would rotate from the front line every 4-6 days

Life as Conscientious Objector (refuse to fight)

- **Absolutist** (no participation) and **Alternativist** (some participation, no killing)
- Some refused for religious, humanitarian beliefs
- Treated **horribly**: imprisoned, verbally abused, some shot

Life on the Home Front

- Britain imported ⅔ of her food
- In 1917, 46'000 tonnes of meat were sunk
- Britain had to grow much more food
- **Farms** had a lack of workers and horses
- In some cities, looters broke into shops
- In January 1918, **rationing** introduced
- The **Defence of the Realm Act**, passed in 1914, has given the government control over our daily activities

Year 9 History Knowledge Organiser: How did experiences in World one vary?

Public response to War in 1914

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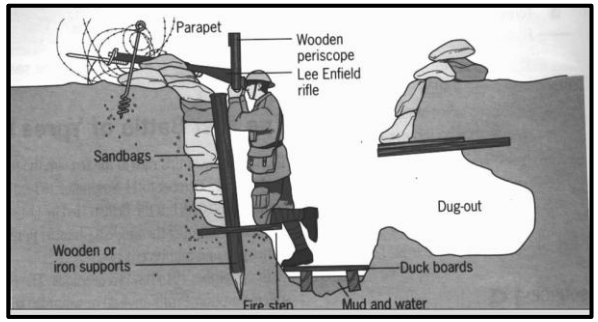
Success at the _____ ?

- Damaged German _____
- The Germans were forced to strategically retreat (give up land they had won) to the _____ Line (well-built trenches) in March 1917

- Britain had lost _____ men by the end of the campaign, whereas Germany lost _____

Failure at the Somme?

- _____Allied soldiers had died at the end of the first day, compared to _____German soldiers.
- 88,000 Allied (British and French) soldiers died for every mile gained.
- Britain had lost a 'whole generation', the 'cream of _____ youth'
- The British and French line only advanced around _____ kilometres in four months



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WARNING.
Defence of the Realm
Discussion in Public of Naval and Military matters may convey information to the enemy.
BE ON YOUR GUARD.

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- The **Defence of the** _____ **Act**, passed in 1914, has given the government control over our daily activities

Year 9 History Knowledge Organiser: Russian Revolution

Russian Society

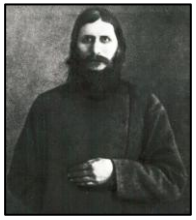
- Peasants made up **82% of population** and often starved and were illiterate.
- Working class made up **4% of the population** and often lived in squalor.
- Middle-class made up **1.5% of the population** and a lot had got their riches from industrialisation.
- The Nobility made up **14% of the population** and held positions of influence like the army. They supported the Tsar as wanted to keep their riches.

Tsar Nicholas II and his family

- The **Romanov** dynasty had ruled over Russia for 300 years.
- Before 1905, Russia was an **autocratic state** where the **Tsar** had absolute power.
- The events of Bloody Sunday also caused Unpopularity for the Tsar. He ordered the killing of 200 innocent protesters.

Rasputin

- **Grigori Rasputin** was a Russian peasant and mystic who said he had the ability to improve the health of Aleksey Nikolayevich.
- Russian people were unhappy with the amount of time he was spending with the royal family and the influence he had over them.



Russia and WW1

- Tsar Nicholas II made himself the Commander-in-Chief of the armed forces, so all military disasters were linked to him.
- Russia were weak as a result of WW1
  - Lack of resources being sent to the front and at home
  - Military failures and poor leadership

Capitalism

- Private ownership
- Structured society (rich and poor)
- Nationalistic

Communism

- Natural and inevitable
- All private property should be confiscated by the state and shared equally.
- Workers most important people.
- Workers need to have a revolution
- *'Dictatorship of the Proletariat'*
- No nationalism - nationalism divides the workers (proletariat)

Revolutions

1905 Bloody Sunday Revolution	**Tsar Nicholas vs Workers (led by Father Gapon)** • Workers strike over poor working and living conditions • Russian people miserable after Russo Japanese War failure • 200'000 march on Winter Palace • Tsar's army shoots 200, bloody massacre
Feb/March 1917	**Monarchists** vs **Revolutionaries**. • Bread riots broke out in Petrograd (St Petersburg) • Joined by strikers from the armaments factory. • Troops were sent to use force to end the demonstration and 40 people were killed. • Tsar forced to abdicate • Provisional Gov takes charge
Oct/Nov 1917	**Provisional Government** vs **Bolsheviks**. • Failures of Prov Government: they carry on WWI, do not solve bread riots and can't organise • **Lenin** decides to organise a skilful military ***coup***. Key locations were seized by 'Red Guards' such as train stations. It was bloodless.

Abdicate	When a monarch renounced their throne.
Autocracy	A system of government by one person with absolute power.
Bolshevik	A member of the faction of the Russian Social Democratic Party.
Capitalism	An economic and political system where trade and industry are controlled by private owners for profit.
Communism	A theory or system of social organisation where all property is owned by the community and each person contributes and received according to their ability and need.
Coup d'état	A sudden, violent, and illegal seizure of power from a government.
Duma	A ruling assembly of Russia.
Dynasty	A line of hereditary rulers of a country.
Liberal	A political and social philosophy promoting individual rights, civil liberties, and democracy.
Marxism	The political and economic theories of Karl Marx and Friedrich Engels.
Menshevik	A member of the non-Leninist group of the Russian Social Democratic Workers' Party.
Municipal	Relating to a town or district or its governing body.
Socialist	Someone who promotes policies against capitalism.
Soviet	Elected local, district, or national council in the USSR.
Tsar	An emperor of Russia before 1917.
Zemstva	A rural self-government in Russia.

Year 9 History Knowledge Organiser: Russian Revolution

Russian Society

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- _____ made up **4% of the population** and often lived in _____.
- Middle-class made up _____ and a lot had got their riches from _____.
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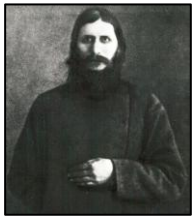
Tsar Nicholas II and his family

- The_____ dynasty had ruled over Russia for ___ years.
- Before 1905, Russia was an _____ _____ where the ____ had absolute power.
- The events of _____ also caused unpopularity for the Tsar. He ordered the killing of _____

Rasputin



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Russia and WW1

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  - _____
  - _____

Capitalism

- _____
- _____ _
- _____

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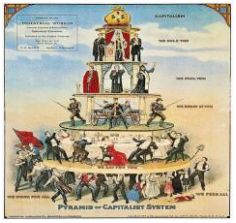

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Was everything different after World War One?

Was Britain a 'Land Fit for Heroes' after WWI? (David Lloyd George)

Housing	Education	Health	Tax & Welfare
Housing and Town Planning Act (1919) - provided funding for 500,000 new houses However… Less than half of these were actually built.	Education Act (1918) - set the school leavers' age at 14 and recognised special educational needs for the first time. However… 14-18 year-olds were not necessarily educated, education quality remained unequal.	Ministry of Health Act (1919) - establishing the health ministry. National Insurance (Health) - covered all workers and pensioners. However… Healthcare remained private (paid for)	Increased Death Duties - tax on the rich enabled the government to help the poor. Interventionism - support to the poor and unemployed through welfare. However… Unemployment remained high.

What were the economic consequences of WWI?

- **Global status**: Britain was overtaken as the world's largest economy by both the USA and Japan (down to third)
- **Unemployment:** Reached 20% in 1920 and 23.4% in 1921
- **Strikes:** Trade Union membership reached 8 million in 1920, and there was a general strike in 1926. Workers demanded 'not a penny off the pay, not a minute off the day!'

What were the political consequences of WWI?

Before WWI

- Before WWI, the most popular political party in Britain was the Liberal Party.
- The second biggest party was the Conservative Party.
- The Labour Party was small but growing.

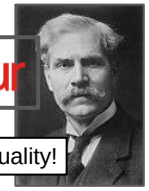
During WWI

- The Liberals split as David Lloyd George was seen as a better wartime leader than Herbert Asquith
- The Conservatives joined the government to support Lloyd George

After WWI

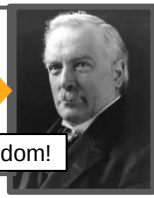
- The Liberals never fully recovered from their divisions
- The Conservatives became the dominant party of British politics
- Labour overtook the Liberals due to support from the working classes

Labour



Equality!

THE LIBERAL PARTY



Freedom!

Conservatives

Stability and Empire!

What were the technological consequences of WWI?

- Radio - entertainment and communication

- X-Rays - health

- Blood Transfusions - health
- Plastic Surgery - health

- Aircraft - warfare and transportation

How did women's role in society improve?

Jobs:

- Women gained access to more jobs besides just being a servant or housewife - teaching, farming, lawyer, civil service

Household:

- Women gained more control of the household due to men's absence in WWI
- Marriage seen as less essential

Control of their bodies:

- Access to contraception became more widely available thanks to the work of Marie Stopes

Politics:

- Representation of the People Act (1918) gave the vote to property owning women over 30.
- Representation of the People Act (1928) gave all women the vote

Was everything different after World War One?

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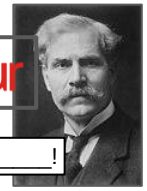
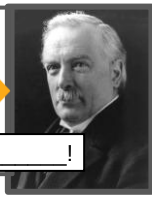


_____!

THE LIBERAL PARTY



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Timeline

August 1914 - Outbreak of WWI

1915 - the USA begins its 'preparedness programme'

May 1915 - sinking of the *Lusitania*.

1916 - Woodrow Wilson becomes the President of the USA

April 2nd 1917 - USA joins WWI.

October 1929 - Wall St Crash

How important was the USA's involvement in World War One?

- Before the USA joined WWI, they implemented a 'preparedness programme' in 1915
  - Established a regular army of 250,000
  - Trained enough officers to command an army of 1,500,000
  - Expanded the US Navy
  - Set up the Council of National Defence
- The USA joined WWI due to the following factors:
  - **Economic** - they had lent Britain and France $2.3 billion, and wanted to protect this investment.
  - **Conflict** - German U-boats had sunk the *Lusitania*, which was carrying American citizens. The Germans launched unrestricted submarine warfare on the USA. The Germans were contacting Mexico to propose an alliance.

  - **Power** - The USA feared that German victory would threaten the liberal democracy the USA was based on
- The USA joined WWI on April 2nd 1917.
- The USA contributes strongly to the Allies as an 'Associate Power'

  - **Economic** - provided loans worth $7 billion between 1917 and the end of the war, and provided food and arms.
  - **Conflict** (military) - sent up to 1,200,000 soldiers by September 1918, along with stationing more than 380 US Navy vessels.

Why did the American people want isolationism?

- **Geography** - the USA was full of natural resources, and the leading producer of steel, food, cloth and coal. They didn't need to trade.
- **Economic** - they lent the Allies over $7 billion during WWI and another $3 billion after. They could use this money for development instead.
- **Social** - the population grew from 23 million in 1850 to 106 million in 1920, many being young immigrants from Europe keen to work. Americans were often hostile to immigrants and their new ethnicities/ religions and cultures.
- **Conflict** - the USA had suffered losses during WWI, though no fighting took place there. Americans were angry they fought a war they didn't need to
- Wilson suggested the League of Nations be set up after WWI to work towards peace. The American government voted not to join the League, following a policy of **isolationism**.

Why did America 'boom' in the 1920s?

1) **World War One** - USA made money from War loans, taking over economic markets while Europe was at war, and selling armaments to Europe.

1) **Consumerism** - USA used mass production of goods and bank credit to buy the latest goods.

1) **Cycle of prosperity** - as people continued to buy and invest, it caused economic growth in other areas of society

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Features of the Boom

1) **Assembly Line** - Ford Motors was able to use the assembly line to more efficiently and quickly build the Model T car, drastically reducing the price of it.

1) **Women** - New household inventions allowed women to spend less time on housework and more time socialising. Social attitudes changed with the rise of the "flapper", who openly smoked, drank, and danced in public.

1) **Entertainment** - Four out of five films were produced in the USA, the first 'talkie' was made by Warner Brothers, and by 1927 over 264 productions were being shown in Broadway theatres.

1) **Advertisements** - promoted the purchase of the latest goods.

Why did the USA go 'bust' in 1929?

1) Overproduction - when factories produce too much of something, it's value goes down. This makes it harder to sell for high prices. This causes producers (businesses) to go bankrupt

1) Speculation - if bankers speculate (guess) that a company will be profitable, they will invest lots of money in it. But the money they invested was often borrowed 'on margin' in the first place. This means they've gambled someone else's (banks) money. This is called speculation and can go wrong very quickly as they can't pay back their loans if the business share drops.

1) Unequal distribution - whilst the rich got richer through the boom, the poorer communities didn't always benefit from their employers' profits. Over half of all Amerians still lived under the poverty line

1) Tariffs - Isolationism meant that tariffs (export duties/taxes) went up. This is good in times of economic development when lots of Americans are buying their own products. But if American consumers run out of money, then producers will find it hard to export their products to consumers abroad.

This all caused the **Wall St Crash in October 1929** . Banks ran out of money, businesses went bankrupt, people's savings were taken from them, and mass unemployment followed into the 1930s, known as period of time called the '**Great Depression**'.

Was the 1920s roaring for everyone?

- **Farmers** - were put out of work by technological innovations and they overproduced, which brought the value of products down
- **African Americans** - were discriminated against in the 1920s, notably by the KKK (a hyper racist organisation). They had 5 milion members and targeted African Americans, Jews and Catholics through violence.
- **Society (Crime)** - urban society was rife with criminal enterprises, like Al Capone's gang in Chicago, because of prohibition (banning alcohol). This caused a wave of violence.

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Key terms:

Creation, Genesis, Evolution, Big Bang, Charles Darwin, Cosmological, Aquinas, Paley, Teleological, Natural selection

Can science and religion can work together to explain how the universe was created?

Cosmological

St Thomas Aquinas (1225-1274)

Everything has to come from something. You cannot make something out of nothing.

Therefore there must have been a 'First Cause' that created the 'something' (the universe). That First **Cause** is God.

Teleological (or design)

William Paley (1734-1805)

If you were walking on a heath and saw a watch on the ground you would assume that its parts had not come together by chance because it is too ordered and complicated. Therefore someone must have designed it or it would not work.

Because the universe is also ordered and complicated, someone must have designed that too. That 'someone' is God.

Year 9- How did the universe begin?

To describe tribal myths about the origin of the universe

At the beginning it was only darkness and a bare land… The Aborigines of Australia are considered one of the oldest surviving cultures in the world. Many different creation stories exist among the different Aboriginal groups. These 'Dreamtime' stories are considered to be a place where every person exists forever. According to the Aboriginals, the 'Dreaming' era preceded our own and was when spirit beings formed creation. It is believed that a culture of heroes (gods) travelled across a land without form and created sacred sites and other significant places, giving the language to people.

https://www.ancient-origins.net/human-origins-folklore-myths-legends-australia/australian-aboriginals-creation-myth-00229

The Theory of Evolution

The basic idea behind the theory of evolution is that different species have developed over time from other life forms. The Earth is about 4.5 billion years old and there is scientific evidence that life on Earth began more than three billion years ago.

The accepted theory of **evolution** explains that it happens by **natural selection.** The key points are that:

Individuals in a species show a wide range of variation and this variation is because of differences in their genes.

Individuals with characteristics most suited to their environment are more likely to survive and reproduce. The genes that allow these individuals to be successful are passed to their offspring.

Those that are poorly adapted to their environment are less likely to survive and reproduce. This means that their genes are less likely to be passed on to the next generation.

Given time, a species will gradually evolve.

Both genes and the environment can cause variation, but only genetic variation can be passed on to the next generation.

To explain Christian creation stories about the origin of the universe

In Christianity, the **creation** accounts are found in the first two chapters of the book of Genesis in the Bible. **Genesis** 1:1-2:4a

This account tells how God created the world in six days and rested on the seventh.

In the beginning God created the heavens and the earth.

Genesis 1:1

After creating the earth, the sky, the seas and plants, God made birds and fish on the fifth day and animals and humans on the sixth day.

So God created man in his own image, in the image of God he created him; male and female he created them.

How did the universe begin?

The Big Bang Theory.

One of the theories put forward by cosmologists is the **Big Bang theory**. This suggests that about 15 billion years ago there was a massive explosion. This was the point at which all matter in the universe began; space and time began then too. Over time the universe that we know, and human and animal life, emerged.

This theory is generally accepted by scientists as being the best theory they have to explain the origins of the universe.

If this theory is true, then it could mean that the universe 'just happened' and that it did not emerge as a result of the activity of a creator God.

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Knowledge Organiser: Creation Stories

Key Words

Mystery—A question that has no simple answer.

Story—A tale designed to interest, amuse, instruct or teach.

Myth—A legendary story that wants to explain something and might be partly true.

Dominion—having power and authority over something else like animals.

Creationist Christians—Believe everything in the Bible is a fact and happened exactly as it was described. The Bible is historically true.

Liberal Christians—Believe that the creation story is a myth. It does contain some important

Hindu Creation Story

Before time began there was no heaven, no earth and no space between. A vast dark ocean washed upon the shores of nothingness and licked the edges of night. A **giant cobra** floated on the waters. Asleep within its endless coils lay the Lord Vishnu. He was watched over by the mighty serpent. Everything was so peaceful and silent that Vishnu slept undisturbed.

From the depths a humming sound began to tremble, **Om**. It grew and spread, filling the emptiness and throbbing with energy. Vishnu awoke and from Vishnu's navel grew a magnificent lotus flower. In the middle of the blossom sat Vishnu's servant, **Brahma**. Vishnu spoke 'It is time to begin, 'create the world.'

Vishnu and the serpent vanished. Brahma remained in the lotus flower, floating on the sea. Brahma split the lotus flower into three. He stretched one part into the **heavens**. He made another part into the **earth**. With the third part of the flower he created the **skies**.

The earth was bare. Brahma set to work. He created grass, flowers, trees and plants of all kinds. Next he created the animals and the insects to live on the land. He made **birds to fly in the air** and many fish to swim in the sea. To all these creatures, he gave the senses of touch and smell. He gave them power to see, hear and move.

The world was soon bristling with life and the air was filled with the sounds of Brahma's creation.

Christian Creation Story

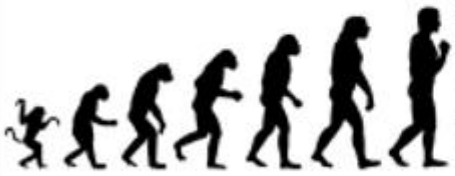
The Christian creation story is in **Genesis**, the first book of the **Bible**. It shows Christians that God created the world from nothing (ex nihilo) and in 6 days, resting on the 7th day. God is believed to have given humans **dominion** over the rest of creation which meant they had **responsibility** to look after the Earth and all its inhabitants.

Christians have different beliefs about this as a creation story. Some consider it to be a factual account of creation (**creationists**), whilst others believe that the story is a myth that has symbolic meaning (**liberalists**).

Scientific Creation Story

Scientists believe the Universe began in a **Big Bang** (huge explosion) about 14 billion years ago. At that time, the entire Universe was inside a bubble that was thousands of times smaller than a pinhead. It was hotter and denser than anything we can imagine. Then it suddenly exploded. The Universe that we know was born. Time, space and matter all began with the Big Bang.

In a fraction of a second, the Universe grew from smaller than a single atom to bigger than a galaxy. As the Universe expanded and cooled, energy changed into particles of matter, forming hydrogen and eventually stars. When stars die and explode (**supernova**), they release all of the materials needed to create planets and also life.



Scientists also believe that life on Earth has developed over millions of years and humans are here as a result of a process of evolution. Humans and other animals have evolved by adapting to their environment through a process known as **Natural Selection** (species who are best suited to their environment are successful and pass on their genes to their offspring).

Liberal Christians do support current scientific theory and believe that God could have caused the Big Bang and is therefore still the creator of the universe.

Knowledge Organiser: Creation Stories

Key Words

Mystery—A question that has no simple answer.

Story—A tale designed to interest, amuse, instruct or teach.

Myth—A legendary story that wants to explain something and might be partly true.

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Year 9 Pilgrimage

Key terms:

Bethlehem, Pilgrim, Nativity, Varanasi, Lord Shiva, Purify, Lourdes, Miracles, Mecca, Hajj, Hajji, Hajjah, Ihram, Kabah

To describe and explain the rituals performed during Hajj.

The pilgrimage to Makkah is called Hajj and is the fifth Pillar of Islam. Muslims try to go to Makkah during Dhu al-Hijjah, the twelfth month of the Islamic calendar.

Ihram relates to the state of purity and equality before God (Allah) which Muslims enter before going on Hajj. To symbolise this state, male pilgrims wear two lengths of white cloth whilst on Hajj.

On the first day of the Hajj, pilgrims walk around the **Ka'bah** seven times in an anti-clockwise direction

Pilgrims next run between the hills of Safa and Marwah seven times. This is to represent the search of Hagar, Ibrahim's wife, for water for her son Ismail.

Pilgrims travel from Makkah to **Mina** to spend the first night of the Hajj. The next morning they travel on to the plain of **Arafat**, where they stand on or near the **Mount of Mercy from** noon until dusk, praising Allah.

Pilgrims spend the second night at **Muzdalifah**, where they collect small stones to use on the third day when they return to Mina. They throw these stones at three pillars called **Jamarat**, which represent the Devil.

To explain a variety of religious pilgrimages

Bethlehem is situated approximately five and a half miles west of Jerusalem. It is the place where Christians believe **Jesus** was born. The most important site in Bethlehem is the Church of the Nativity in Manger Square, which was built in the fourth century. Christian pilgrims travel to Bethlehem, particularly at Christmas time to attend services in the Church of the **Nativity**. Some pilgrims kiss the star representing the birthplace of Christ to show their devotion.

Varanasi is an ancient city on the banks of the River Ganges in Uttar Pradesh, Northern India. It is one of the most sacred sites in India because it is believed to have been the home of **Lord Shiva**. Millions of pilgrims visit Varanasi in order to **purify** themselves by bathing in the River Ganges at sunrise.

Jerusalem remains an important place of pilgrimage for Jewish people. Until the destruction of the Second Temple in 70 CE and the Roman occupation of the city after the **Bar Kokhba** revolt, it used to be a duty for Jewish people to visit Jerusalem three times every year, to coincide with three major **Jewish festivals - Pesach, Shavuot and Sukkot.**

To explain why Hajj is a significant event for Muslims Duty – the Hajj is the fifth of the Five Pillars of Islam and is an obligation for all Muslims, at least once in their lives. Once they have completed the Hajj, a Muslim man may call himself a **Hajji** and a woman can call herself a **Hajjah.**
Following in the footsteps of the Prophet Muhammad.
Five Pillars of Islam - Hajj is the fifth of the Five Pillars of Islam. As such it reflects a Muslim's devotion, loyalty and belief and therefore helps him or her to grow spiritually.
Key belief – the pilgrimage to Makkah reminds Muslims of their key belief in the equality of all humankind before Allah because each person takes part on exactly the same basis. **Muslim will dress in white – Ihram when beginning Hajj.**
Spirituality - the Hajj prompts Muslims to reflect and think on their own lives. Modern lifestyles are hectic, but the Hajj gives Muslims the opportunity to switch off from work and trivial issues. It also allows Muslims to reconnect with what is important and focus on spiritual matters.
To explain the importance of Iona to Christians. Iona is on the West coast of Scotland and is important to Christians as a pilgrimage site in dedication to the monastery formed by St columba, an Irish missionary. He brought Catholicism from Ireland. It is believed to be a place where the walls between the spiritual world and the physical world are thin.

To explain the difference between a tourist and a pilgrim
When theists go on **pilgrimage** they travel somewhere that is special to their faith. It might be to places written about in the sacred writings. It may be a place where a miracle once happened, or a saint is buried. Often the journey itself matters as much as being at the special place because it gives the 'pilgrim' – the person on the journey – time to pray and think.
Pilgrimage is an important part of spiritual life for many theists. People have always gone on pilgrimage for many reasons – perhaps to say sorry to God for something they had done wrong (penance), or because they were ill looking for an answer to a problem or difficulty.

To evaluate whether miracles take place during Lourdes.
Lourdes is considered a special place to visit because prayers and services are believed to bring real **blessings** to the pilgrim.
Pilgrims may visit to be cleansed of their sins and to be **cured** of their illnesses. It is believed that spring water from the grotto can heal people if they are sick. Millions of visitors come to Lourdes each year in the hope of being cured.
The International Medical Committee of Lourdes began in 1947 and passes judgement on whether or not any of the healings that take place in Lourdes are **miracles**. By 2015, 69 cases had been recognised as miracles by the Roman Catholic Church.
The opportunity to focus closely on their faith helps pilgrims feel secure in the knowledge that God will look after them, forgive them for their sins and even cure them of their illnesses.

Year 9 Pilgrimage

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YEAR 9 FRENCH KNOWLEDGE ORGANISER
Term 1 – Sentence Builder 1

I think that	**Je pense qu'**
In my opinion	**À mon avis**
I think (believe) that	**Je crois que**
I would say that	**Je dirais qu'**
In my opinion (according to me)	**Selon moi**

we must	**il faut**
we must	**on doit**
we should	**on devrait**
it is important to	**il est important de**
it is necessary to	**il est nécessaire de**

respect	**respecter**
treat with respect	**traiter avec respect**
women/men	**les femmes /les hommes**
girls/boys	**les filles/les garçons**

gender equality	**l'égalité des sexes**
(animal) rights	**les droits des (animaux)**
disabled people	**les personnes handicapées**

to be in a relationship with	**pouvoir être en couple avec**
whoever, in spite of	**n'importe qui malgré**
their skin colour	**leur couleur de peau**

fight against	**lutter contre**
fight/combat	**combattre**
unemployment	**le chômage**
poverty	**la pauvreté**

we can be	**on peut être**
poor	**pauvre**
equal	**égal**
disabled	**handicapé**

and have the same	**et avoir les mêmes**
values	**valeurs**
rights	**droits**

Practice Translations

I would say that we should be able to be in a relationship with whoever	
I think that we must respect gender equality	
In my opinion it is necessary to fight against unemployment	
We can be poor and have the same values	
we can be disabled and have the same rights	

YEAR 9 FRENCH KNOWLEDGE ORGANISER
Term 1 – Sentence Builder 2

my famous role model is	**mon modèle célèbre c'est**
my favourite celebrity is	**ma célébrité préférée c'est**
the person that I admire is	**la personne que j'admire c'est**

an influencer (m./f.)	**un influenceur/une influenceuse**
a footballer (m./f.)	**un footballeur/une footballeuse**
a sportsman/a sportswoman	**un/une sportif**

who is called	**qui s'appelle**
he/she inspires me	**il/elle m'inspire**
fought for peace/justice	**a combattu pour la paix/justice**
fought against bullying	**a lutté contre le harcélement**

participated to lots of protests	**a participé à beaucoup de manifestations**
became	**est devenu(e)**
was born	**est né(e)**

I can identify	**je peux m'identifier**
with him/her	**avec lui/elle**
he is	**il est**
she is	**elle est**

happy	**content(e)**
strong	**fort(e)**
loyal	**fidèle**
happy	**heureux/heureuse**
kind	**gentil/gentille**
self confident (m./f.)	**sûr de lui/ sûre d'elle**

in a wheelchair	**en fauteuil roulant**
only child (m.)	**fils unique**
only child (f.)	**fille unique**

Practice Translations

my favourite celebrity is an influencer (f.)	
She inspires me because she participated in lots of protests	
I can identify with her because she is self confident	
He inspires me because he fought for peace	
I can identify with him because he is in a wheelchair	

YEAR 9 FRENCH KNOWLEDGE ORGANISER
Term 1 – Sentence Builder 1

I think that	
In my opinion	
I think (believe) that	
I would say that	
In my opinion (according to me)	

we must	
we must	
we should	
it is important to	
it is necessary to	

respect	
treat with respect	
women/men	
girls/boys	

gender equality	
(animal) rights	
disabled people	

to be in a relationship with	
whoever, in spite of	
their skin colour	

fight against	
fight/combat	
unemployment	
poverty	

we can be	
poor	
equal	
disabled	

and have the same	
values	
rights	

Practice Translations	
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YEAR 9 FRENCH KNOWLEDGE ORGANISER
Term 1 – Sentence Builder 2

my famous role model is	
my favourite celebrity is	
the person that I admire is	

an influencer (m./f.)	
a footballer (m./f.)	
a sportsman/a sportswoman	

who is called	
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fought for peace/justice	
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became	
was born	

I can identify	
with him/her	
he is	
she is	

happy	
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in a wheelchair	
only child (m.)	
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I can identify with him because he is in a wheelchair	

YEAR 9 FRENCH KNOWLEDGE ORGANISER
Term 1 – Sentence Builder 3

during the week	**pendant la semaine**
usually	**d'habitude**
everyday	**tous les jours**

I get up	**je me lève**
I get dressed	**je m'habille**
I relax	**je me repose**
I have breakfast	**je prends le petit-déjeuner**
I sleep	**je dors**
I leave my house	**je sors de chez moi**

however	**cependant**
yesterday	**hier**
last week	**la semaine dernière**

I got up	**je me suis levé(e)**
I got dressed	**je me suis habillé(e)**
I relaxed	**je me suis reposé(e)**
I had breakfast	**j'ai pris le petit-déjeuner**
I slept	**j'ai dormi**
I left my house	**je suis sorti(e) de chez moi**

at/around	**à / vers**
8 o'clock	**huit heures**
8.15	**huit heures et quart**
8.30	**huit heures et demie**
8.45 (quarter to 9)	**neuf heures moins le quart**

in the morning	**du matin**
in the afternoon	**de l'après-midi**
in the evening	**du soir**

Practice Translations

During the week, usually I get up at 6.30am	
however yesterday I got up at 6.45	
Every day I sleep at 11.15pm	
but last week I slept at 9.30pm	
Yesterday I got dressed and then I relaxed	

YEAR 9 FRENCH KNOWLEDGE ORGANISER
Term 1 – Sentence Builder 4

I don't feel well	**je ne me sens pas bien**
I am sick	**je suis malade**
I am hot	**j'ai chaud**

I am cold	**j'ai froid**
I am hungry	**j'ai faim**
I am thirsty	**j'ai soif**

I have broken	**je me suis cassé(e)**
I have cut	**je me suis coupé(e)**
I have pain in	**j'ai mal** **au ~~le~~** **à la ~~la~~** **aux ~~les~~**

my face	**le visage**
my knee	**le genou**
my nose	**le nez**
my back	**le dos**
my arm	**le bras**
my throat	**la gorge**
my leg	**la jambe**
my head	**la tête**
my ears	**les oreilles**

since	**depuis**
one day ago	**un jour**
the day before yesterday	**avant-hier**
last Tuesday	**mardi dernier**

In order to be in good health	**pour rester en bonne santé**
In order to lead a healthier life	**pour mener une vie plus saine**
In order to be in good (physical) shape	**pour être en forme (physique)**

I try	**j'essaie de/d'**
I attempt	**je tente de/d'**
to avoid sugary food	**éviter les sucreries**
to win a sport competition	**gagner une compétition sportive**
to have fun a little every day	**m'amuser un peu tous les jours**

Practice Translations

I sick and I have pain in my head	
I have broken my leg since the day before yesterday	
I have pain in my throat and I'm hot and thirsty	
In order to be in good health I try to avoid sugary food	
In order to lead a healthier life, I attempt to have a little fun every day	

YEAR 9 FRENCH KNOWLEDGE ORGANISER
Term 1 – Sentence Builder 3

during the week	
usually	
everyday	

I get up	
I get dressed	
I relax	
I have breakfast	
I sleep	
I leave my house	

however	
yesterday	
last week	

I got up	
I got dressed	
I relaxed	
I had breakfast	
I slept	
I left my house	

at/around	
8 o'clock	
8.15	
8.30	
8.45 (quarter to 9)	

in the morning	
in the afternoon	
in the evening	

Practice Translations	
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Every day I sleep at 11.15pm	
but last week I slept at 9.30pm	
Yesterday I got dressed and then I relaxed	

YEAR 9 FRENCH KNOWLEDGE ORGANISER
Term 1 – Sentence Builder 4

I don't feel well	
I am sick	
I am hot	

I am cold	
I am hungry	
I am thirsty	

I have broken	
I have cut	
I have pain in	

my face	
my knee	
my nose	
my back	
my arm	
my throat	
my leg	
my head	
my ears	

since	
one day ago	
the day before yesterday	
last Tuesday	

I try	
I attempt	
to avoid sugary food	
to win a sport competition	
to have fun a little every day	

In order to be in good health	
In order to lead a healthier life	
In order to be in good (physical) shape	

Practice Translations	
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In order to lead a healthier life, I attempt to have a little fun every day	

YEAR 9 SPANISH KNOWLEDGE ORGANISER
Term 1 – Sentence Builder 1

I would say that	**Diría que**
we should	**se debería**
treat with respect	**tratar con respeto (a)**
respect	**respetar (a)**

it is necessary	**es necesario**
to be able to marry	**poder casarse**
to be in a relationship	**estar en pareja**
with whoever	**con quien sea**

in spite of	**a pesar de (del)**
their skin colour	**el color de su piel**
their sexual orientation	**su orientación sexual**
you can be	**se puede ser**
disable	**discapacitado**
and have the same	**y tener los mismos**

women	**las mujeres**
rights	**derechos**
values	**valores**
and feel	**y sentirse**
the same	**igual**
included in society	**incluído en la sociedad**

everyone's identity	**la identidad de todos**
I think that it is important	**pienso que es importante**
fight against	**luchar contra**
racism	**el racismo**
because	**porque / dado que/puesto que**
but	**pero**
disabled people	**las personas con discapacidad**

diverse	**diverso**
inequality	**la desigualdad**
hi/her nationality	**su nacionalidad**
sexism	**el sexismo**
discrimination	**la discriminación**
poor	**pobre**
rich	**rico**
religious	**religioso**
transgender	**transgénero**

Practice Translations

I think that we must respect the elderly	
In my opinion we should treat with respect disabled people	
I would say that we can be poor and have the same values	
We can be disabled and feel included in society	

YEAR 9 SPANISH KNOWLEDGE ORGANISER
Term 1 – Sentence Builder 2

My favourite celebrity is	**Mi personalidad favorita es**
an athlete	**un atleta**
a TV character	**un personaje de televisión**
I am a fan of	**soy fanático/a de**

who is called…	**que se llama…**
fights for …. rights	**lucha por los derechos de**
fights for peace/justice	**lucha por la paz/la justicia**
fights against	**lucha contra**

sad	**triste**
kind	**simpático**
beautiful	**bonito**
happy	**feliz/felices**
strong	**fuerte**

I can identify with him/her	**Puedo identificarme con él/ella**
is strong	**es fuerte**
is hard-working	**es trabajador**
is happy	**está contento**
fun	**divertido/a**

my role model is	**mi modelo a seguir es**
a footballer	**un futbolista**
a sports person	**un deportista**
represents his/her country	**representa a su país**
works hard	**trabaja duro**
helps other people	**ayuda a otra gente**

the person that I admire is	**La persona que admiro es**
participates in protests	**participa en manifestaciones**
is in a wheelchair	**Está en silla de ruedas**
unique	**único**
boring	**monótono**

Practice Translations

My favourite celebrity is an athlete because he is strong	
My role model is a sports person because she represents her country	
The person that I admire is a TV character because he helps other people	
I am a fan of a footballer because he works hard	

YEAR 9 SPANISH KNOWLEDGE ORGANISER
Term 1 – Sentence Builder 3

I put on make up	**Me maquillo**
I wake up	**me despierto**
I get up	**me levanto**
I brush my teeth	**me lavo los dientes**

I comb my hair	**me peino**
I shower	**me ducho**
I get dressed	**me visto**
I relax	**me relajo/descanso**

I have fun	**me divierto**
I move	**me muevo**
I go to bed	**me acuesto**
I sleep	**me duermo**
I have breakfast	**desayuno**
I do my homework	**hago mis deberes**
I leave my house	**salgo de mi casa**

at 10:05	**a las diez y cinco**
at 10:10	**a las diez y diez**
I play on the computer	**Juego en el ordenador**

at 8:30	**a las ocho y media**
at 7:30	**a las siete y media**
at 9:15	**a las nueve y cuarto**
at 8:45	**a la nueve menos cuarto**

in the morning	**por la mañana**
during the week	**Durante la semana**
at the weekends	**los fines de semana**
in the afternoon	**por la tarde**

in the evening	**por la noche**
then	**luego**
after	**después**
finally	**finalmente**
at midday	**al mediodía**
at midnight	**a la medianoche**
at 1 o'clock	**a la una**
at 8:35	**a las nueve menos veinticinco**
at 6:40	**a las siete menos veinte**

Practice Translations

I wake up at 7:30 then I get up at eight o'clock	
I have breakfast, then I shower and brush my teeth	
I comb my hair and put on make up in the morning	
I get dressed at 8:35 in the evening	

YEAR 9 SPANISH KNOWLEDGE ORGANISER
Term 1 – Sentence Builder 4

I am hungry	**Tengo hambre**
I don't feel well	**no me encuentro bien**
I am sick	**estoy enfermo/a**
I am hot	**tengo calor**
I am cold	**tengo frío**

I am thirsty	**tengo sed**
since	**desde**
one day ago	**hace un día**
a month ago	**hace un mes**
an hour ago	**hace una hora**

a week ago	**hace una semana**
yesterday	**ayer**
the day before yesterday	**anteayer**
last Tuesday	**el martes pasado**

	el hombro
	el pie
	el dedo
	los ojos

It hurts	**Me duele(n)**
I have pain	**tengo dolor de**
I have broker	**me he roto**
I have cut	**me he cortado**

my knee	**la rodilla**
my head	**la cabeza**
my face	**la cara**
my hand	**la mano**
my nose	**la nariz**

my back	**la espalda**
my throat	**la garganta**
my mouth	**la boca**
my leg	**la pierna**

my stomach	**el estómago**
my arm	**el brazo**
my heart	**el corazón**
my body	**el cuerpo**

Practice Translations

I don't feel well. It hurts my back since yesterday	
I am sick. I have broken my hand an hour ago	
I am cold. I have pain of my throat.	
I am hot. It hurst my stomach since this afternoon	
I have cut my finger one day ago	

Food & Nutrition Knowledge Organiser – Working Safely in the Kitchen KS3

Personal Hygiene

- Wash hands with hot, soapy water for 30 seconds before cooking.
- Tie back long hair; remove jewellery.
- Wear a clean apron.
- Cover cuts with a blue waterproof plaster.
- Avoid touching your face or hair during food preparation.

Food Safety

Preventing Food Poisoning

- **Keep raw and cooked foods separate** to avoid cross-contamination.
- Use **separate chopping boards**:
  - **Red** – raw meat
  - **Green** – fruit & vegetables
  - **Yellow** – cooked meat
  - **Brown** – bakery/bread
- Cook food thoroughly; check it is piping hot.

Common Kitchen Hazards

- **Slips and trips** – clean spills immediately.
- **Burns and scalds** – use oven gloves; take care with hot water.
- **Cuts** – handle knives properly; store safely.
- **Fire risks** – keep flammable items away from heat sources.

Safe Cooking Practices

- Read the recipe before starting.
- Set up a **clean, organised workstation**.
- Use the correct tool for the job.
- Clean as you go to keep your area safe.
- Wash equipment in hot, soapy water after use.

Equipment Safety

Using Knives

- Use the **claw grip** for holding food.
- Use the **bridge hold** for cutting larger items.
- Always carry knives with the blade pointing down.
- Never leave knives in a sink of water.

Using Heat Sources

- Keep pan handles turned inwards.
- Use oven gloves, not tea towels.
- Open oven doors slowly to avoid steam burns.

Food & Nutrition Knowledge Organiser – Working Safely in the Kitchen KS3

Personal Hygiene

- Wash …….with hot, soapy water for 30 seconds before cooking.
- Tie back long hair; remove …….
- Wear a clean……..
- Cover cuts with a …… plaster.
- Avoid touching your …… during food preparation.

Food Safety

Preventing Food Poisoning

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Using Heat Sources

- Keep pan handles turned……..
- Use ……., not tea towels.
- Open oven doors slowly to avoid ……..

Food & Nutrition Knowledge Organiser – Working Safely in the Kitchen KS3

What Are Organoleptic Properties?

Organoleptic properties are the characteristics of food that we experience using our **senses**:

- **Sight** (appearance)
- **Smell** (aroma)
- **Taste** (flavour)
- **Touch** (texture and mouthfeel)
- **Sound** (e.g., crunch)

These properties help us judge the quality, freshness, and appeal of

Key Vocabulary

Organoleptic – using the senses to evaluate food

Aroma – smell of food

Texture – feel or mouthfeel of food

Flavour – taste + aroma

Mouthfeel – texture sensed in the mouth

Appearance

Colour, shape, size, glossiness, evenness, visible ingredients

Helps us decide if food looks appealing or fresh

Aroma (Smell)

First sense used before eating

Can indicate freshness or spoilage

Examples: sweet, spicy, burnt, sour, fragran

Flavour (Taste)

The five main tastes:

- **Sweet**
- **Salty**
- **Sour**
- **Bitter**
- **Umami (savoury)**

Flavour is also influenced by smell.

Texture (Mouthfeel)

What food feels like when touched or eaten:

Crunchy, crispy, chewy, smooth, creamy, soft, firm, sticky, crumbly

Sound

The noise food makes when eaten or handled

Examples: crunch of crisps, snap of chocolate, fizz of drinks

Food & Nutrition Knowledge Organiser – Working Safely in the Kitchen KS3

What Are Organoleptic Properties?

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- **……..** (aroma)
- **……..**(flavour)
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Key Vocabulary

Organoleptic – using the ……. to evaluate food

Aroma – ……

Texture – ……

Flavour –.....

Mouthfeel – ……

These properties help us judge the quality, freshness, and appeal of

<u>Appearance</u>

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<u>Texture (Mouthfeel)</u>

What food feels like when touched or eaten:

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……
……
……
……..

<u>Sound</u>

The noise food makes when eaten or handled

Examples:
……
……
……
……
……

Design and Technology Year 9 - Knowledge organiser

CAD - Computer aided design CAM - Computer aided manufacture	
Positives	Negatives
It is quick to produce a virtual 3D model, therefore saving time and money.	The initial set up cost for both hardware and design software is very expensive.
It can be easily modified, therefore you do not need to redraw the design if you wish to make a change.	If there is a technical fault, your work can be lost which would be costly in terms of time and money.
Designs can be rendered to look like it is made in any material so you can quickly visualise how your design will look if made from a variety of materials.	Your design ideas can be hacked and stolen by others.
Designs can be emailed anywhere in the world saving the time and expense of postage.	You need good IT skills to design in 3D which may involve employing a different workforce or retraining your current workforce.
Designs can be transferred to manufacture saving time and money.	
Designs can be shared instantly with the client reducing the time it takes to get a successful design.	

Wood joints in order of strength (top of the list being the strongest)	Dovetail joint
	Comb joint
	Mortise and tenon joint
	Dowel joint
	Mitre joint
	Lap joint
	Butt joint

Joining metals
Soldering is a relatively low temperature process. Solder, made from tin and other metals, is melted onto the components to be joined - it sticks them together when it cools and solidifies.
Brazing is a higher temperature process which uses a brass spelter as the joining material. It's much stronger than soldering.
Welding is by far the strongest method of joining metal. It uses very high temperatures to melt the edges of the joint so that they flow together. Welding can also be used to fill in thinned metal or slight gaps - metal from a welding rod is melted on.

Design and Technology Year 9 - Knowledge organiser

CAD - CAM -	
Positives	Negatives
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	If there is a technical fault, your work can be lost which would be costly in terms of time and money.
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	You need good IT skills to design in 3D which may involve employing a different workforce or retraining your current workforce.
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Wood joints in order of strength (top of the list being the strongest)	

Joining metals
is a relatively low temperature process. Solder, made from , is melted onto the components to be joined -
is a higher temperature process which uses a . .
. It uses very high temperatures to melt the edges of the joint so that they flow together. - metal from a welding rod is melted on.

Year 9 – DT Knowledge Organiser

Tools and processes used to cut and shape materials	
Hand saw	Many different types of hand saw are available depending on the application, including hack saw, coping saw, crosscut saw, panel saw, rip saw and tenon saw. All have metal blades and angled teeth for cutting and removing waste. Most require only one hand around the handle and cut on the forward stroke of the blade through the material. A coping saw however, cuts on the pulling stroke. The saw should be held lightly and comfortably in the hand and controlled as it cuts through the material.
Jigsaw	This is a portable powered saw that can be used to cut shapes from sheet material by moving back and forth/in a straight line. It has removable blades that can be changed to suit the type, thickness and desired finish of the material being cut. A jigsaw cuts on the down stroke, and space for the blade is required below the material being cut. Jigsaws are not very accurate cutting tools, because the blade is only secured at one end.
Scroll saw	This is a fixed-position machine saw that can be used to cut small shapes from hand-held sheet material. A range of blades are available for cutting different types of material. Similar to a jigsaw, the blade travels up and down but the scroll saw cuts on the up stroke, so it is important to have the material firmly located under the hold-down.
Pillar drill and hand drill	Fixed-position pillar drills and portable hand drills both cut a relief below the surface of a material, such as a countersink or counterbore, or a hole using a drill bit. Pillar drills are designed to drill along a vertical axis. Many pillar drills have a table that can be rotated to allow work to be mounted at an angle for drilling. Portable hand drills provide an opportunity to drill into materials that may not be able to be drilled easily on a pillar drill, e.g. due to location, size or shape.
Hot wire cutter	A hot wire cutter is a useful tool for cutting expanded polystyrene. It can be hand held or table based, and consists of a thin, taut metal wire which is heated by an electric current to approximately 200 degrees. As polystyrene is lightly pressed against the hot wire it melts, forming a cut line just in advance of contact.
Laser cutter	A laser cutter is a computer-controlled machine that can be programmed to etch or cut through sheet materials, such as paper, card, polymers, woods, boards and some thin sheet metals. Sheet material is placed onto a table in the machine and a powerful laser beam vaporises a path through the material as it passes over it. The laser beam follows a path determined by a software driver program, according to a drawing produced by CAD software.
CNC router	A CNC router is a machine that can be programmed to cut and shape a wide variety of rigid materials along both horizontal and vertical coordinates. A mill-type cutting tool is positioned in a chuck and it rotates at high speed. The cutting tool follows a path determined by a software driver program.

Year 9 – DT Knowledge Organiser

Tools and processes used to cut and shape materials	
	Many different types of hand saw are available depending on the application, including hack saw, coping saw, crosscut saw, panel saw, rip saw and tenon saw. All have metal blades and angled teeth for cutting and removing waste. Most require only one hand around the handle and cut on the forward stroke of the blade through the material. A coping saw however, cuts on the pulling stroke. The saw should be held lightly and comfortably in the hand and controlled as it cuts through the material.
Jigsaw	This is a portable that can be used to cut shapes from sheet material by moving . It has removable that can be changed to suit the type, thickness and desired finish of the material being cut. A jigsaw cuts on the , and space for the blade is required . Jigsaws are not very accurate cutting tools, because .
	This is a fixed-position machine saw that can be used to cut small shapes from hand-held sheet material. A range of blades are available for cutting different types of material. Similar to a jigsaw, the blade travels up and down but the scroll saw cuts on the up stroke, so it is important to have the material firmly located under the hold-down.
Pillar drill and hand drill	Fixed-position pillar drills and portable hand drills both cut a relief , such as a , or a hole using a drill bit. Pillar drills are designed to drill along a . Many pillar drills have a table that can be rotated to allow work to be . provide an opportunity to that may not be able to be drilled easily on a pillar drill, e.g. due to .
	A hot wire cutter is a useful tool for cutting expanded polystyrene. It can be hand held or table based, and consists of a thin, taut metal wire which is heated by an electric current to approximately 200 degrees. As polystyrene is lightly pressed against the hot wire it melts, forming a cut line just in advance of contact.
Laser cutter	A is a machine that can be programmed to sheet materials, such as paper, card, polymers, woods, boards and some thin sheet metals. Sheet material is placed onto a and a powerful laser beam through the material as it passes over it. The laser beam follows a path determined by a , according to a drawing produced by .
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Commedia Dell'Arte

- Commedia dell'arte began in Italy in the early 16th Century and very quickly spread across Europe.
- From the name, you might have guessed that Commedia dell'arte is a form of comedy.
- The style consists of exaggerated stock characters, masks, acrobatics and improvisation.
- In Commedia dell'arte, status is very important as it underpins the entire performance. There is a always a servant/master relation, where the only way the servant can 'win' is by cheating or deceiving.
- Status: Your position or rank in relation to others
- Commedia Dell'arte, just like Pantomime and Melodrama, has its own set of stock characters. These characters appear in all the productions and they always wear the same mask to help the audience know who is who. They also have a particular way of moving.

Masks

1. There is a specific mask for each specific character. Audiences would therefore be able to recognise each character purely by their mask
2. Masks must be put on backstage -the audience must never see the actor putting on or taking off the mask

Commedia Dell'Arte Performances

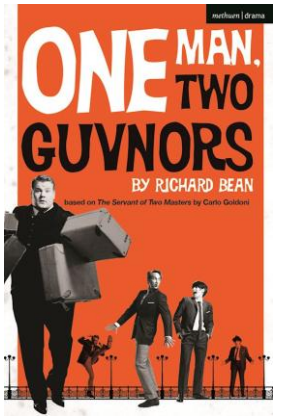
- A Servant To Two Masters -Carlo Goldoni -Traditional
- One Man Two Guvnors -Richard Bean -Modern
- Friends -Modern for screen

Vocal Skills

Pitch: Speaking in a high, low or natural voice
Pace: The speed in which someone speaks
Pause: A break in speaking, a period of silence
Tone: How the voice conveys emotions
Volume: The loudness or quietness of the voice
Emphasis: The exaggeration of individual words

Physical Skills

Facial expressions: Showing emotion with the face
Posture: The way someone stands or sits
Body Language: Open or closed to show emotion
Gesture: A movement with the arms/hands (wave, pointing)
Levels: Height -crouching, laying, stood










Commedia Dell'Arte

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- Status: Your _____ or _____ in relation to others
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Commedia Dell'Arte Performances

- A Servant To Two Masters -Carlo Goldoni -_____
- _____ -Richard Bean -Modern
- Friends -Modern for _____

Vocal Skills

_____***:*** Speaking in a high, low or natural voice

_____***:*** The speed in which someone speaks

_____***:*** A break in speaking, a period of silence

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_____

_____***:*** The loudness or quietness of the voice

Emphasis: _____

_____

Physical Skills

Facial expressions: _____

_____

_____***:*** The way someone stands or sits

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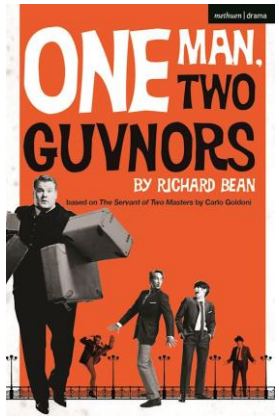








Zanni -Servant

- The Zanni character is a buffoon or clown
- Usually hunched over through carrying heavy loads as a porter, with knees in a 'bowed' position and feet splayed apart.
- Always highly animated, waving arms and gesticulating with hands
- Some Zanni characters were known for their acrobatic feats, including handstands and flips.

Harlequin -Servant

- Harlequins are clown characters, known for their silly behaviour and getting into trouble.
- The Harlequin is always hungry and on the hunt for food, however he can be sidetracked by a potential love interest
- The Harlequin is full of energy, doing handstands somersaults and cartwheels.

Brighella -Servant

- Whilst the Harlequin is known for getting into trouble, Brighella is the one to cause trouble.
- Brighella plays tricks and pranks on others, as well as being meddlesome and greedy
- When Brighella moves he has a low centre of gravity with bent knees, he takes small fast steps with an open body language

Columbina -Middle

- Agile and playful
- Fluid and flirty movement
- Lots of shoulder rolls
- Happy to use her femininity to get attention
- Leads with heels but with chest up and shoulders back
- Arms lead from wrists
- Lots of confidence
- Smooth walk with the head held high

Magnifico -Master

- The Master of the Masters
- The most powerful character in the world of Commedia
- Magnifico is like an Eagle - always looking down
- Pure Evil
- Mysterious - not much is known about him as he rarely enters plays
- Demanding.
- Dominating
- Loud, booming voice

Dottore -Master

- A man who knows everything about the world but understands nothing.
- Has a greed for knowledge and constantly brags about his intelligence
- Leading with the belly - he is so weighed down with knowledge that he cannot physically support himself
- Always rubbing/holding onto his Big belly

Pantalone -Master

- A greedy old merchant who loves to argue about money and property.
- Leading with the chin
- Mean, ‘vinegary’ and very stingy
- Arched back, hunched like an old man
- Clawing fingers, rubbing fists
- Nasal Sounds

Il Capitano -Middle

- He reveals his cowardice whenever challenged to some act of danger or daring and usually attempts to take the credit for other characters' achievement
- Arrogant, pompous and full of himself
- High centre of gravity- straight legs and tall posture
- Open body language
- Wants to show off and be the centre of attention
- Lifts from lower leg from the knee like a bird

Zanni -_____

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- Always _____, waving arms and gesticulating with hands
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_____-Servant

- _____ are clown characters, known for their silly behaviour and getting into trouble.
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- _____
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Dottore -_____

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- Has a _____ for knowledge and constantly brags about his intelligence
- Leading with the _____ - he is so weighed down with knowledge that he cannot physically support himself
- Always rubbing/holding onto his_____

_____-Master

- A _____ who loves to argue about money and property.
- Leading with the _____
- Mean, 'vinegary' and very stingy
- Arched back, hunched like an _____
- Clawing fingers, rubbing fists
- _____ Sounds

_____-Middle

- He reveals his _____ whenever challenged to some act of danger or daring and usually attempts to take the _____ for other characters' achievement
- _____ and full of himself
- High centre of gravity- straight legs and tall posture
- _____ body language
- Wants to show off and be the centre of attention
- Lifts from lower leg from the knee like a ____

Devices of a computer

PC = **Personal Computer**

Peripherals – devices you plug into a computer.

Input devices

Send data *into* the computer

Keyboard, mouse, **microphone**, scanner

Output devices

Computer sends data *out*

Monitor/screen, **printer**, speakers, headphones

Storage & Data Units

Bit – smallest data unit: **0 or 1**

Byte – **8 bits**

Converting between units

KB = 1,000 Bytes

MB = 1,000,000 Bytes

GB = 1,000,000,000 Bytes

TB ≈ 1,000,000,000,0000 Bytes

Remember: as you go from:

bits → bytes → KB → MB → GB → TB, the amount of data gets **1000× bigger** each step.

Programming – Key Vocabulary

Algorithm – step-by-step instructions to solve a problem.

Program – an algorithm written in a programming language (e.g. Python).

Variable – a named memory location that stores data which may change while the program runs.

Data types

String – text, e.g. "Password123!" (passwords are stored as Strings).

Integer (int) – whole numbers, e.g. 5, -2.

Float – decimal numbers, e.g. 3.14.

Boolean – True or False.

Images, Pixels & Colour

Screen images are made of tiny dots called **pixels**.

Resolution = total number of pixels (e.g. 1024×768, 12MP).

Each pixel's colour is stored as **binary**.

Colour depth

Number of bits used per pixel.

Number of colours = **2^bits**.

Example: 4-bit colour → **16 colours**.

24-bit "True Colour"

24 bits per pixel: 8 bits for **Red**, **Green**, **Blue**.

≈ 16.7 million possible colours.

White = R=255, G=255, B=255 so **Blue = 255**.

Programming Constructs

1. Sequence

Instructions run in order from top to bottom.

2. Selection

Makes decisions, chooses different paths.

Python: if, elif, else.

3. Iteration (Loops)

Count-controlled – repeats a set number of times, e.g. for i in range(10):

Condition-controlled – repeats while a condition is True, e.g. while score < 1000:

while score < 1000: is a **condition-controlled** loop.

Devices of a computer

PC = **Personal Computer**

_____– devices you plug into a computer.

Input devices

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Keyboard, mouse, **microphone**, scanner

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___= 1,000,000 Bytes

GB = 1,000,000,000 Bytes

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_____– an algorithm written in a programming language (e.g. Python).

_____– a named _____ that stores data which may change while the program runs.

Data types

_____– text, e.g. "Password123!" (passwords are stored as _____).

_____**(int)** – whole numbers, e.g. 5, -2.

_____– decimal numbers, e.g. 3.14.

_____– True or False.

Images, Pixels & Colour

Screen images are made of tiny dots called _____.

_____= total number of pixels (e.g. 1024×768, 12MP).

Each pixel's colour is stored as _____.

Colour depth

Number of bits used per pixel.

Number of colours = **2^bits**.

Example: 4-bit colour → **16 colours**.

24-bit "True Colour"

24 bits per pixel: 8 bits for _____, _____, _____.

≈ 16.7 million possible colours.

White = R=255, G=255, B=255 so **Blue = 255**.

Programming Constructs

1. _____

Instructions run in order from top to bottom.

2. _____

Makes decisions, chooses different paths.

Python: if, elif, else.

3. _____(Loops)

_____ – repeats a set number of times, e.g. for i in range(10):

_____ – repeats while a condition is True, e.g. while score < 1000:

while score < 1000: is a **condition-controlled** loop.

Key Hardware Components

CPU – Central Processing Unit

"Brain" of the computer

Carries out instructions & calculations

Uses **RAM** as short-term memory while running programs

Motherboard

Main circuit board connecting all components

Network Interface Card (NIC)

Allows connection to a network / the internet

Key Programming Reminders

Use **=** for assignment, **==** for comparison.

Test your code in small steps and fix errors early.

Use a **for** loop when you know how many times to repeat.

Use a **while** loop when you repeat until a condition changes.

Check data types – you can't do maths with a **String** without converting it.

Data Representation – Binary

Computers store data in **binary** (base 2)

Only uses digits **0** and **1**

Binary place values

1, 2, 4, 8, 16, 32, 64, 128, …

Examples

`1010 = 8 + 2 =` **10**

`100100 = 32 + 4 =` **36**

`24 →` **11000_2**

`127 →` **01111111**

Work from right to left: multiply each bit by its place value, then add.

Memory & Storage

RAM (Main Memory)

Volatile – data lost when power is off

Used by the **CPU** as short-term working space

Stores running programs & data currently in use

Secondary Storage (Non-volatile)

Keeps data when computer is turned off

Hard Disk Drive (HDD)

Solid State Drive (SSD)

USB stick, DVD, memory card, etc.

Python – Selection (Sports Program)

```
print("Type in your name")
name = input()
print("What sport do you like to play", name)
print("Football, Tennis, Netball, Swimming?")
sport = input()
if sport == "Football":
   print("Great! what is your favourite team?")
   team = input()
elif sport == "Tennis" or sport == "tennis":
   print("Excellent, did you win your last game?")
   win = input()
elif sport == "Netball":
   print("Awesome. Do you play for your school?")
   school = input()
else:
     print("Brilliant, it's good to do exercise you enjoy.")
```

Computer Systems

Hardware

Physical parts of a computer (you can touch)

Keyboard, monitor, CPU, memory (RAM), hard disk, SSD, graphics card, network card

Software

Programs running on hardware

Apps, games, browsers, operating systems

Operating System (OS)

Main software that manages hardware & other software

Examples: **Windows, Linux, Android, iOS**

USB is not an OS – it is a connection / storage device

Key Hardware Components

_____– Central Processing Unit

"Brain" of the computer

Carries out instructions & calculations

Uses **RAM** as short-term memory while running programs

_____

Main circuit board connecting all components

_____ (NIC)

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Computers store data in _____(base 2)

Only uses digits __and ___

Binary place values

1, 2, 4, 8, 16, 32, 64, 128, …

Examples

`1010 = 8 + 2 = _____`

`100100 = 32 + 4 = _____`

`24 → _____`

`127 → 01111111`

Work from right to left: multiply each bit by its place value, then add.

Memory & Storage

RAM (Main Memory)

- _____– data lost when power is off
- Used by the **CPU** as short-term working space
- Stores _____ & data currently in use

_____ (Non-volatile)

- Keeps data when computer is turned off
- **_____ (HDD)**
- **_____ (SSD)**
- USB stick, DVD, memory card, etc.

Python – Selection (Sports Program)

```
print("Type in your name")
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Computer Systems

_____

_____parts of a computer (you can touch)

Keyboard, monitor, CPU, memory (RAM), hard disk, SSD, graphics card, network card

_____

Programs running on hardware

Apps, games, browsers, operating systems

_____ (_____)

Main software that manages hardware & other software

Examples: _____, _____, _____, _____

USB is not an OS – it is a connection / storage device