Beckfoot Upper Heaton

Knowledge Organisers

Year 9 – Half Term 5

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How to use a knowledge organiser – step by step guide

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

Y9 English Knowledge Organiser: The Crucible LA

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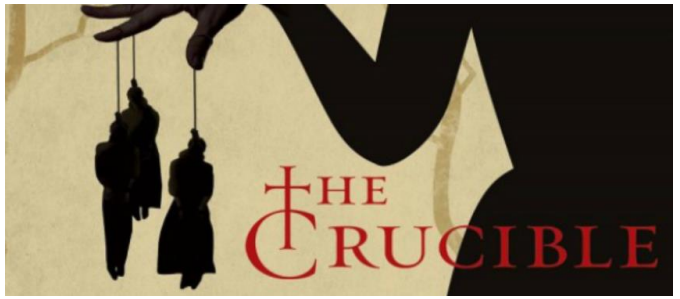
Abigail Williams	The seventeen-year old niece of Reverend Parris. She is an orphan and a former servant to the Proctors.
Revered Parris	The minister of Salem, Betty's father, and Abigail's uncle. Tituba is his slave.
Betty Parris	Reverend Pariss' ten-year old daughter, cousin to Abigail.
John Proctor	A farmer, husband to Elizabeth Proctor. Well respected in the local community and values his reputation.
Elizabeth Proctor	Loyal wife to John Proctor. She fires Abigail Williams as her servant before the play begins. Mary Warren is her servant during the events of the play.
Rev John Hale	Minister of another Massachusetts town, an expert in identifying witchcraft.
Thomas Putnam and **Ann Putnam**	An influential couple in Salem but not well liked in the community.
Francis Nurse and **Rebecca Nurse**	An influential couple in Salem and well liked in the community but is enemies with the Putnam's.
Giles Corey	An elderly member of the community. A farmer who is always filing lawsuits.
Tituba	Rev. Parris' slave from Barbados.
Mary Warren	The naïve and lonely servant of the Proctors.
Mercy Lewis	Eighteen-year old servant of Thomas and Ann Putnam.
Susanna Walcott	Abigail William's friend.
Deputy Governor Danforth	A deputy governor of Massachusetts who come to preside over the witch trials.
Judge Hathorne	A bitter, remorseless Salem judge.
Ezekiel Cheever and **Marshall Herrick**	Two court appointed officials.



Act 1	In Salem, Massachusetts, two young girls – Betty Parris and Ruth Putnam – have fallen ill with a mysterious sickness. Rumours spread through town that the cause of the sickness is witchcraft. Reverend Parris is angry with his niece, Abigail, who he caught dancing in the woods with a group of girls, including Betty and Ruth, and his slave Tituba. Abigail and Betty claim to have seen other women in the town spending time with the Devil.
Act 2	A court has been assembled in town for the witchcraft trials. Abigail and the other girls are expert witnesses who accuse and confirm Salem's residence of being witches. Elizabeth Proctor – who found out Abigail and her husband were having an affair – is accused by Abigail of being a witch and is arrested.
Act 3	Mary admits that her and the other girls have been lying and faking the symptoms of witchcraft, Danforth doesn't believe Mary and is convinced witches are real and in Salem. Abigail denies Mary's accusations and pretends Mary is summoning spirits to attack her. Mary breaks down and 'admits' her witchcraft. Proctor admits to his affair with Abigail; Elizabeth is called to testify about the affair and she lies to protect John, not realising he has already confessed. Proctor is arrested.
Act 4	Hale tries to get all the prisoners accused of witchcraft to confess their crimes in order to avoid hanging. Abigail and Mercy Lewis run away.. Proctor doesn't confess to witchcraft and is taken to the gallows with Rebecca Nurse, at the end of the play, suggesting they are both executed.

Methods	**Key Vocabulary**	
Foreshadowing	Theocratic	Corruption
Dramatic Irony	Hysteria	Magistrate
Allegory	Mania	Pallor
Symbolism	Persecution	Deposition
Hyperbole	Confession	Perjury
Pun	Manipulation	Apparition
Allusion	Sombre	Manifest
Repetition	Heathen	Guile
Metaphor	Conjure	Beguile
Alliteration	Abomination	Testify
Personification	Warrant	Purge

Key quotes	Character	Act
"She hates me, uncle … for I would not be her slave"	Abigail *about* Elizabeth	1
"She makes me drink blood"	Abigail *about* Tituba	1
"You drank a charm to kill John Proctor's wife"	Betty *about* Abigail	1
"You will confess yourself or I will take you out and whip you to your death Tituba!"	Parris	
"You loved me, John Proctor"	Abigail	1
"Am I accused?" / "I am accused"	Elizabeth Proctor	2
"My wife will never die for me… goodness will not die for me"	John Proctor	2
"It were only sports in the beginning sir, but then the whole world cried 'spirits, spirits!'"	Mary Warren	3
"For he is taken I count myself his murderer"	Hale *about* Proctor	4
"I speak my own sins, I cannot judge others"	Proctor	4

Themes	**Context**
Authority and Rebellion	Salem witch trials
Hysteria	McCarthyism
Intolerance	Soviet Party
Reputation	Anti-communism trials
Goodness	Protestantism
Judgement	

Motifs
Accusations
Confessions
Empowerment

Y9 English Knowledge Organiser: The Crucible HA

P4

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Key Characters:

1) **John Proctor** – a local farmer and protagonist of the play
2) **Elizabeth Proctor** – the long-term sick wife of John Proctor
3) **Abigail Williams – a** manipulative girl motivated by power, lust and revenge
4) **Reverend Parris** – the minister of Salem's church and uncle of Abigail
5) **Betty Parris** – Reverend Parris' ten-year-old daughter
6) **Thomas Putnam** – a wealthy, influential and manipulative citizen of Salem
7) **Ann Putnam** – wife of Thomas Putnam and mother to daughter Ruth
8) **Mary Warren** – maidservant of the Proctor's household, led astray by Abigail
9) **Francis Nurse** – a wealthy and influential man
10) **Rebecca Nurse** – the wise and respected wife of Francis
11) **Judge Danforth** – the deputy governor of Massachusetts & judge in the trials
12) **Judge Hathorne** – another judge presiding over the trials with Danforth
13) **Reverend Hale** – an experienced minister in witchcraft and the supernatural
14) **Giles Corey** – an elderly but feisty farmer with lawsuits against the Putnams
15) **Tituba** – the Putnam's black slave from Barbados

Themes	**Context**
Authority and Rebellion Hysteria Intolerance Reputation Goodness Judgement	Salem witch trials McCarthyism Soviet Party Anti-communism trials Protestantism

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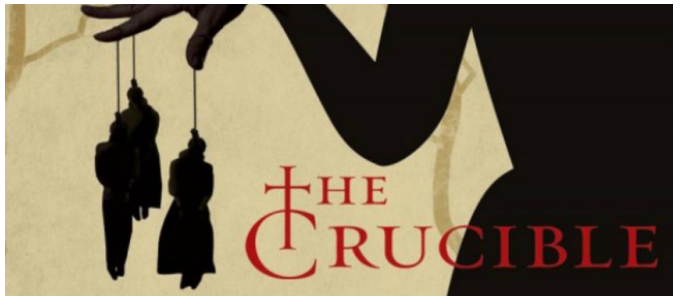
Personification	Warrant	Purge
		Patriarchy



Act 1	In Salem, Massachusetts, two young girls – Betty Parris and Ruth Putnam – have fallen ill with a mysterious sickness. Rumours spread through town that the cause of the sickness is witchcraft. Reverend Parris is angry with his niece, Abigail, who he caught dancing in the woods with a group of girls, including Betty and Ruth, and his slave Tituba. Abigail and Betty claim to have seen other women in the town spending time with the Devil.
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Further Context

- **The Puritans** were a religious group who had very strict rules about how people should behave and live. Eventually the English people became sick of them, and so many Puritans fled to America to escape religious persecution
- **The Puritans** believed women were more likely to sin and susceptible to damnation. Puritans believed women and men were equal in the eyes of God, but not to the Devil.
- **Communism** is a system in which all property is owned by the community and each person contributes and receives according to their ability and needs. The ultimate goal is to establish a communist society, based upon the absence of social classes, money, and the state.
- **Senator Joseph McCarthy**, gave a speech in which he accused a long list of people of being Communists thus sparking an anticommunist frenzy. Arthur Miller, writer of The Crucible, was also accused of being a Communist.

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"You will confess yourself or I will take you out and whip you to your death Tituba!"	Parris	1
"I saw Sarah Good with the Devil! I saw Goody Osburn with the Devil! I saw Bridget Bishop with the Devil!"	Abigail	1
"You loved me, John Proctor"	Abigail	1
"Am I accused?" / "I am accused"	Elizabeth Proctor	2
"My wife will never die for me… goodness will not die for me"	John Proctor	2
"Is the accuser holy now?"	John Proctor	2
"She thinks to dance with me on my wife's grave!"	John Proctor	3
"You must understand, sir, that a person is either with this court or he must be counted against it"	Danforth	3
"It were only sports in the beginning sir, but then the whole world cried 'spirits, spirits!'"	Mary Warren	3
"For he is taken I count myself his murderer"	Hale *about* Proctor	4
"I speak my own sins, I cannot judge others"	Proctor	4

Year 9
Half term 4
Writing with a Motive: Allegorical writing

What is an allegory?
An allegory is a straightforward story or poem that represents a deeper, more meaningful point about society, politics or human nature.

It's a story that can be enjoyed on two levels – literally and/or metaphorically.

Don't forget your SPAG! Use:

- Complex sentences
- Clear paragraphing
- Correctly spelled homophones
- Tenses consistently
- Varied punctuation, including !?():;…

Key Concept	Definition
Allegory	An allegory is a straightforward story or poem that represents a deeper, more meaningful point about society, politics or human nature
Fable	A short story, typically with animals as characters, conveying a moral.
Moral message	A message that is about right or wrong
Characterisation	The creation of a fictional character
Setting	The place where a story happens
Plot	What happens in a story
Time connectives	Words/phrases that tell you when something is happening to help you structure your story, e.g: at first, next, last, meanwhile, eventually, soon afterwards, later that week, whilst, just at that moment, in the end, eventually
SAMOSAP	Simile. Adjective, Metaphor
Narrative voice/perspective – first person	A character within the story is telling the story. Some of the main personal pronouns used are *I, my, me, we*.
Narrative voice/perspective – second person	Not commonly used by writers. The personal pronouns *you* and *your* are used throughout.
Narrative voice/perspective – third person	The story is being told by the voice of someone who is not a character in the story. The main personal pronouns used are *she*, *he* and *they*.
Noun phrases	An adjective and a noun together – sometimes used to start a sentence, e.g. Smashed controls… Destroyed windows… A damaged smile…
Simple sentences	Short sentences including a verb (action word) and a subject (someone/thing doing the verb)
Emotive language	Words/phrases to make a reader feel a particular emotion
Symbolism	The use of symbols to represent ideas or qualities.
Motif	A dominant or recurring idea in an artistic work.
Figurative language	Words and phrases used to suggest a complex idea beyond their literal meaning by creating vivid mental images.

Year 9
Half term 4
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What is an allegory?
An allegory is a straightforward story or poem that represents a deeper, more meaningful point about society, politics or human nature.

It's a story that can be enjoyed on two levels – literally and/or metaphorically.

The characters in an allegory may represent real-life figures.

Sometimes, situations in the story may echo stories from history or modern-day life, without ever explicitly stating this connection.

Don't forget your SPAG! Use:

- Complex sentences
- Clear paragraphing
- Correctly spelled homophones
- Tenses consistently
- Varied punctuation, including !?():;…

Key Concept	Definition
Allegory	An allegory is a straightforward story or poem that represents a deeper, more meaningful point about society, politics or human nature
Types of allegory	Some examples are: biblical, classical, modern
Fable	A short story, typically with animals as characters, conveying a moral.
Moral message	A message that is about right or wrong
Characterisation	The creation of a fictional character
Setting	The place where a story happens
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Narrative voice/perspective – third person	The story is being told by the voice of someone who is not a character in the story. The main personal pronouns used are *she*, *he* and *they*.
Narrative voice/perspective – third person omniscient	The story is being told by a voice who shows they know more than the characters in the story – the narrator is all knowing. The main personal pronouns used are *she*, *he* and *they*.
Noun phrases	An adjective and a noun together – sometimes used to start a sentence, e.g. Smashed controls… Destroyed windows… A damaged smile…
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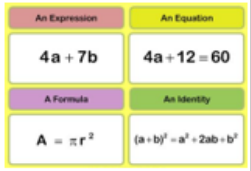
UNIT 2F - ALGEBRA

USING EXPRESSIONS AND FORMULAE-Videos 155/287/154/279

1	Writing Formulae (Derive) **Substitute letters for words** in the question.	Bob charges £3 per window and a £5 call out charge. $C = 3N + 5$ Where N=number of windows and C=cost
2	Expression, Equation, Identity, Formulae	
3	Substitution: replacing letters with negative numbers	a = -3, b = 2 *and* c = 5. Find: 1. $2a = 2 \times -3 = -6$ 2. $3a - 2b = (3 \times -3) - (2 \times 2) = -13$
4	Rearranging formulae: Use inverse operations on both sides of the formula (balancing method) until you find the expression for the letter.	Make x the subject of $y = \frac{2x-1}{z}$ Multiply both sides by z $yz = 2x - 1$ Add 1 to both sides $yz + 1 = 2x$ Divide by 2 on both sides $\frac{yz+1}{2} = x$ We now have x as the subject.

SUBSTITUTION – Videos 782/783

1	Collecting like terms • Collect all your different letters together	4a + 3b + 2a -2b 4a + 2a = 6a 3b – 2b = 1b Answer: 6a + 1b
2	Simplifying expressions	2a x 3a = $6a^2$ 4a ÷ 2a = 2
3	Substitution • Replace the letters with the numbers. • Multiply them as 2y is actually 2 times y.	If x = 2 and y = 3, what is the value of 4x + 2y? 4 x 2 = 8 **and** 3 x 2 = 6 8 + 6 = 14 14

Vocabulary

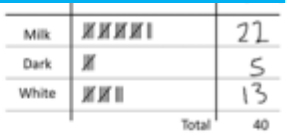
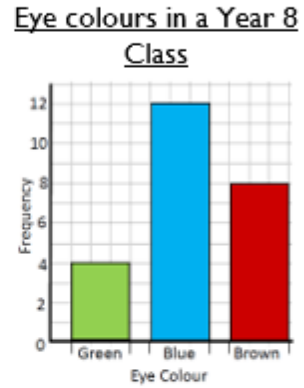
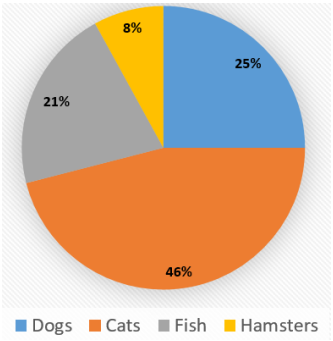
1	Equation	is an expression equaling another. Eg) 3b + 2 = 2d
2	Identity	is two expressions that always equal each other, regardless of the variables. Eg) 2(a + 5) ≡ 2a + 10
3	Formulae	shows the relationship between terms. Eg) 4a + b = c
4	Factorise	The reverse of expanding. Use common factors to put brackets back into an expression.

EXPANDING AND SIMPLIFYING EXPRESSIONS– Videos 156/157/158/159/160/161/162/168

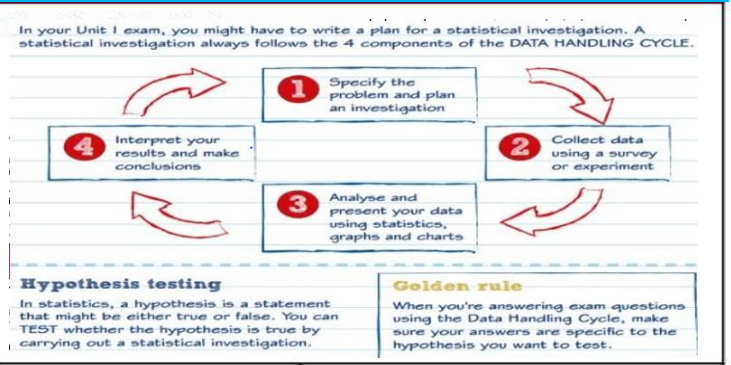
1	Like terms	Terms with the same variable. eg. $4x$ and $5x$ are like terms. $6a$ and $3b$ are not.
2	Expand single brackets	To expand a bracket, **multiply** each term **in the bracket** by the expression **outside** the bracket. $3(x + 7) = 3x + 21$
3	Expand double brackets	Multiply each term in the second bracket by each term in the first. $(x+7)(x+2) = x^2 + 9x + 14$
4	Factorise linear expressions	The **reverse** of **expanding**. Factorising is writing an expression as a product of terms by **'taking out' a common factor**. $6x - 15 = 3(2x - 5)$, where 3 is the common factor.

UNIT 3F – GRAPHS, TABLES AND CHARTS

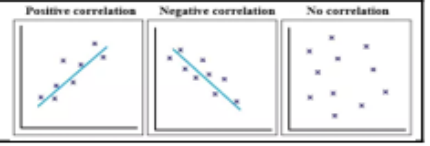
REPRESENTING DATA – Videos 401/425/427/428

	• Information you are collecting listed. • Column for tallies. • Column for frequency.	
2	**Bar Chart** • Frequency on y-axis. • Information you are collecting on the x-axis. • Bars same width. • Equal gaps between bars. • Title explaining what the chart shows.	
3	**Pie Chart** • Divided into sectors which shows the relative size of the data. • Needs a key or labels to clearly show what each sector represents. • Sectors calculated using parts of 360°.	

REPRESENTING DATA – Videos 392/393

1		
2	**Quantitative(number)** Data that is numbers Discrete or continuous	**Qualitative (worded)** Data that in word. Eg. people's favourite colour.
3	**Discrete** Data that can only take certain values.	**Continuous** Data that can take any value within a range. Eg. height.

SCATTER GRAPHS - Videos 453/454

1	Causality	When one variable influences another variable
2	Line of best fit	A straight line that best represents the data on a scatter graph
3	Positive, Negative or No Correlation	

TWO WAY TABLES- Videos 422/423

These are used to show how data falls into 2 different categories. For example gender and favourite sport to watch

What is your favorite sport to watch on television?			
	Football	Basketball	Baseball
Males	40	22	15
Females	12	16	45
Total	52	38	60

A two-way table divides data into groups in rows going across and columns going down the table

Vocabulary

1	Data handling cycle	1) Specify the problem/ pick hypothesis 2) Collect data 3) Process the data and represent on a graph 4) Interpret and discuss the results
2	Correlation	The relationship between different sets of data.
3	Line of best fit	Shows the general direction a group of points seems to follow.
5	Frequency	The number of times something occurs.

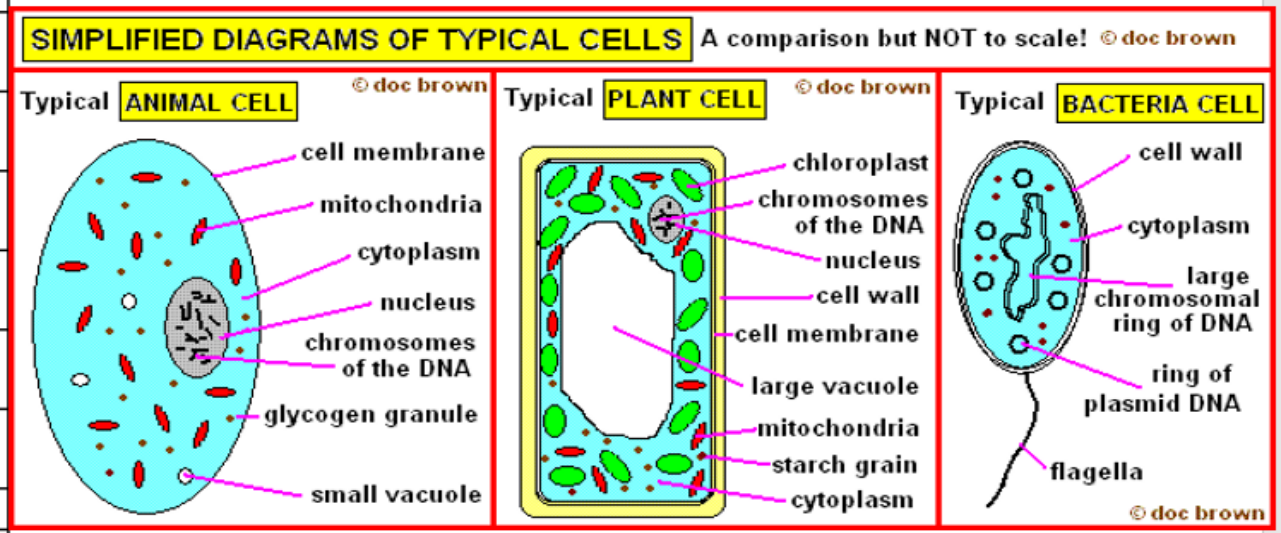
Knowledge Organiser – Cell Structure

Key Terms

Eurakryotic cells	Cells that contain a nucleus
Eukaryote	An organism that is made of eukaryotic cells
Prokaryotic cells	Single-celled organisms that do not contain a nucleus
DNA	Deoxyribonucleic acid – the genetic information found in all living orgnanisms
Ribosome	A cell organelle that makes proteins
Respiration	The release of energy from glucose
Diffusion	The net movement of particles form an area of high concentration to an area of lower concentration
Organelle	A part of a cell with a specific function
Mitochondrion	A cell organelle in which respiration occurs
Chloroplast	A cell organelle in which photosynthesis occurs
Cytoplasm	Jelly like substance in cells where chemical reactions occur
Nucleus	A cell organelle found in eukaryotes containing their genetic material
Cell membrane	Structure surrounding the cell that controls what moves in and out of the cell
Vacuole	Found in plant cells, filled with cell sap, keeps the cell turgid
Cell wall	Made from cellulose and provides structural strength the some cells (not animal cells)
Photosynthesis	Chemical reaction that happens in chloroplasts that stores energy in glucose
Turgid	Describes a swollen cell
Biconcave	Describes a shape with a dip that curves inwards on both sides

Diagrams

Ova	Eggs
Axon	The extension of a nerve cell along which the electrical impulses travel
Phloem	Tubes of living cells that carry sugars to all cells in plants
Xylem	Tubes of dead plant cells through which water flows
Electron microscope	A microscope that uses electrons in place of light to give higher magnification
Resolution	The smallest distance between two seperate points

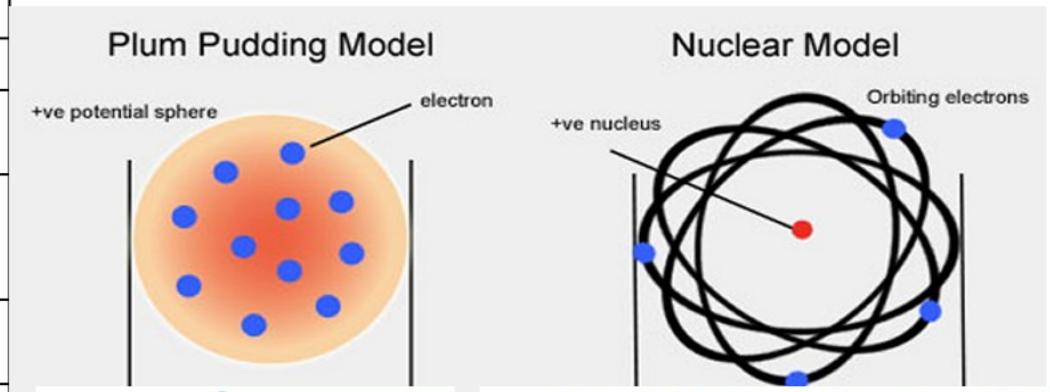


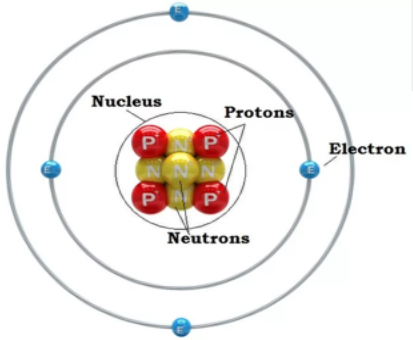
Knowledge Organiser – Atomic Structure and the Periodic Table

Key Terms

Atom	A particle with no electric charge made up of a nucleus containing protons and neutrons and surrounded by electrons.
Proton	A positively charged particle found in the nucleus of an atom.
Neutron	A neutral particle found in the nucleus of an atom.
Electron	Negatively charged particles found on energy levels (shells) surrounding the nucleus inside atoms.
Nucleus	Central part of an atom containing protons and neutrons.
Energy level (shell)	The region an electron occupies surrounding the nucleus inside an atom.
Atomic number	Number of protons in an atom.
Mass number	Number of protons plus neutrons in an atom.
Isotope	Atoms with the same number of protons but a different number of neutrons.
Relative atomic mass	The average mass of atoms of an element taking into account the mass and amount of each isotope it contains. RAM = Total mass of atoms / total number of atoms
Electronic structure	The arrangement of electrons in the energy levels of an atom.
Ion	An electrically charged particle containing different numbers of protons and electrons.
Group	The name given to each column in the periodic table.
Element	A substance containing only one type of atom.
Compound	A substance made from different elements chemically bonded together.
Period	The name given to a row in the periodic table.
Alkali metals	The elements in Group 1 of the periodic table.
Noble gases	The elements in Group 0 of the periodic table.
Halogens	The elements in Group 7 of the periodic table.
Diatomic molecule	A molecule containing 2 atoms.
Halides	Compounds made from Group 7 elements.
Mixture	More than one substance that are not chemically bonded.
Solvent	The liquid that a solute dissolves in.
Solution	A solute dissolved in a solvent.
Soluble	A substance that will dissolve.
Insoluble	A substance that will not dissolve.
Solute	The solid that dissolves in a solvent.

Diagrams





Atomic Mass = # of Protons + # of Neutrons

$^{4}_{2}He$

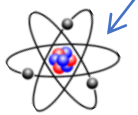
Atomic Number = # of Protons

Keywords: atom, element, compound, mixtures, filtration, crystallisation, chromatography, simple distillation, fractional distillation, proton, neutron, electron, nucleus, orbital/shell, plum pudding model, Niels Bohr, alpha particle, positive, negative, models, groups, Mendeleev, metals, non-metals, ions, physical properties, reactivity, halogens, noble gases, James Chadwick, relative mass, relative charge, isotope, atomic number, mass number, electronic configuration, percentage abundance, periodic table,

5.1 Atomic structure (Chemistry)

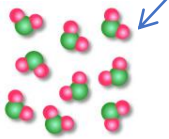
Atoms, elements & compounds

Atoms;
Everything is made of atoms, it is the smallest part of an element



Elements;
There are about 100 different elements, each with a symbol

Compounds;
- Are formed by elements in chemical reactions
- Are 2 or more elements that are chemically combined



Atoms;
An atom has no overall charge, the number of protons = the number of electrons

Relative charges;

Name of particle	Relative charge
Proton	+1
Neutron	0
Electron	–1

Atomic number;
The proton number, it is different for every element

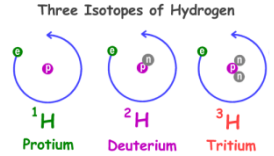
(Mass number) 23
(Atomic number) 11
Na

Mass Number;
The number of protons & neutrons in the nucleus

Size and mass;
- Very small, radius is 0.1nm ($1x10^{-10}$m)
- Mass is mainly in the nucleus

Name of particle	Relative mass
Proton	1
Neutron	1
Electron	Very small

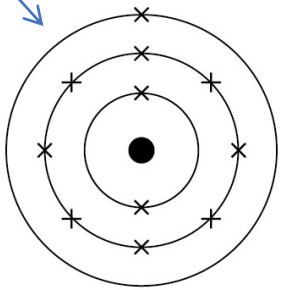
Isotopes;
- Atoms that have the same number of protons (element), but different numbers of neutrons



Relative Atomic Mass;
- This is the mass of the element that takes into account the relative abundance of isotopes,
- Calculated by=

$$\frac{(\text{mass} \times \text{abundance}) + (\text{mass} \times \text{abundance})}{100}$$

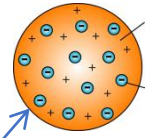
Electronic configurations;
- Electrons fill the lowest energy levels first
- This starts from the nucleus, following a set pattern up to the following maximum
- 1st shell – 2 electrons
- 2nd shell – 8 electrons
- 3rd shell – 8 electrons
- 4th shell – 2 electrons



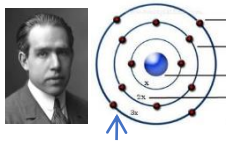
Development of the model of the atom;
New experimental evidence may lead to the model being changed or replaced

Early ideas;
Before the discovery of the electron atoms were tiny spheres, they couldn't be divided

Plum pudding;
After the electron was discovered the atom became a ball of positive charge with negative electrons scattered in it

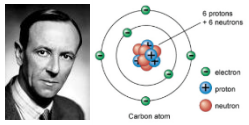


Niels Bohr;
Adapted the nuclear model suggesting electrons in orbitals at set distance

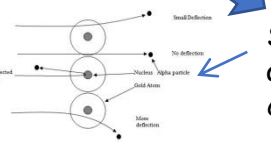


Nucleus development;
Experiments now show nucleus is made of smaller particles of positive charge

James Chadwick;
Evidence to show the existence of neutrons in the nucleus



Alpha particle scattering;
Showed that the mas of an atom was concentrated in the centre, it was charged too



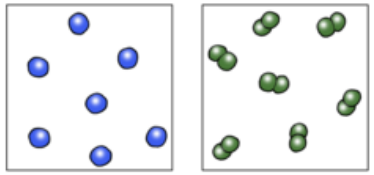
C1 Atomic Structure

Atoms, elements and compounds

All substances are made of **atoms** that cannot be chemically broken down. It is the smallest part of an **element**.

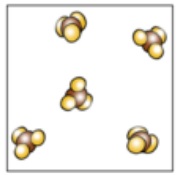
Elements are made of only one type of atom. Each element has its own **symbol.**
e.g. Na is sodium.

Compounds contain more than one type of atom.
Naming compounds-
Two elements = **ide**
e.g. Na_2S Sodium sulphide
Two or more including oxygen = **ate**
e.g. Na_2SO_4 = sodium sulphate

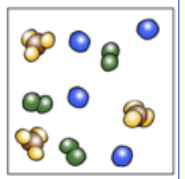


a) Atoms of an element

b) Molecules of an element



c) Molecules of a compound



d) Mixture of elements and a compound

There are two elements here – Magnesium and chlorine

magnesium ← $MgCl_2$ → 2 x chlorine

Magnesium chloride

There are 3 atoms. 1 x Mg and 2 x Cl

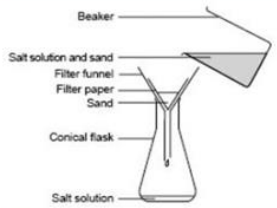
Small numbers (subscripts) after symbols tell you how many of the element BEFORE the number.

Separating mixtures

A mixture consists of **two or more** elements or compounds **not** chemically combined together.

Filtration

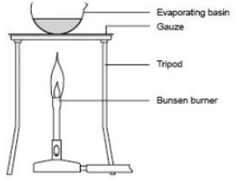
This technique separates substances that are insoluble in a solvent from those that are soluble



Example - filtering a mixture of sand, salt and water to collect the sand

Crystallisation

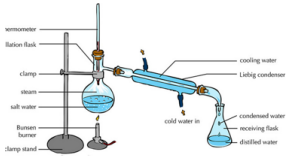
This technique separates a soluble substance from a solvent by heating



Example - crystallisation of sodium chloride from salt solution

Simple distillation

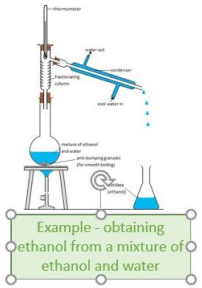
This technique separates a liquid from a mixture by evaporation follow by condensation



Example - obtaining water from sea water

Fractional distillation

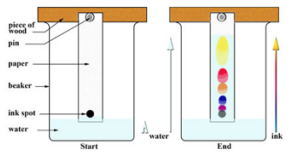
This technique differs from distillation only in that it separates a mixture into a number of different parts, called fractions.



Example - obtaining ethanol from a mixture of ethanol and water

Chromatography

This technique separates small amounts of dissolved substances by running a solvent along absorbent paper

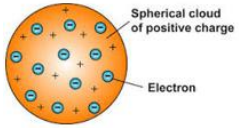


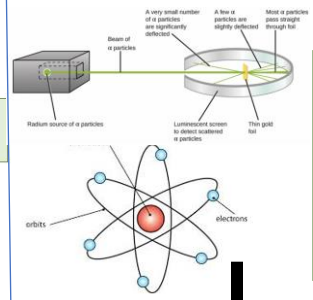
Example - separating the different colours in ink

Development of Atomic Model

Dalton – atoms can't be divided

JJ Thompson discovered electrons – Plum pudding model



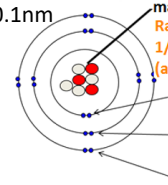


Geiger-Marsden The Nuclear Model of the Atom

Bohr – electrons in shells

Chadwick – the neutron

Atomic radius = 0.1nm



Nucleus - almost all of the mass of an atom is here

Radius of a nucleus is less than 1/10 000 of that of an atom (about 1 x 10^{-14}m)

The first shell (energy level) can hold 2 electrons

The second can hold 8 electrons

The third can hold 8 electrons

Subatomic Particles

	Mass	Charge	Location
Proton	1	+	nucleus
Neutron	1	0	nucleus
Electron	Very small	-	shells

Mass number = Number of **protons** and **neutrons** → $^{7}_{3}Li$

Atomic number = Number of protons →

Number of protons(+) = Number of electrons (-)

Number of neutrons =
mass number – atomic number

$^{7}_{3}Li$

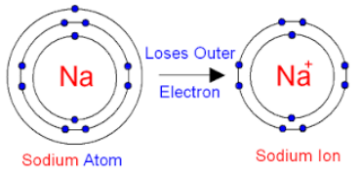
Protons = 3
Electrons = 3
Neutrons = 4

Isotopes — Different mass numbers

$^{12}_{6}C$ $^{13}_{6}C$ $^{14}_{6}C$

Same atomic number

Atoms lose or gain electrons to form ions



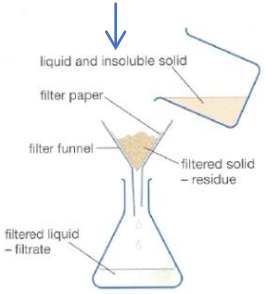
1nm = $1x10^{-9}$m

Mixtures;

Are elements not chemically combined and can be separated by the following methods

Filtration;

Separating soluble and insoluble substances

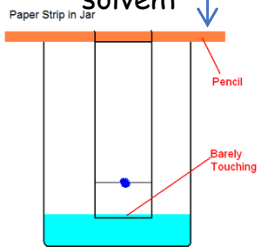


Crystallisation;

Removing a liquid leaving a solid behind

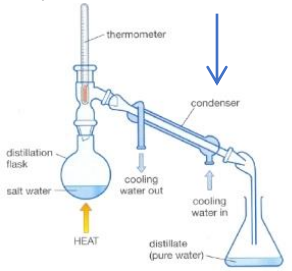
Chromatography;

Separating solutions dissolved in the same solvent



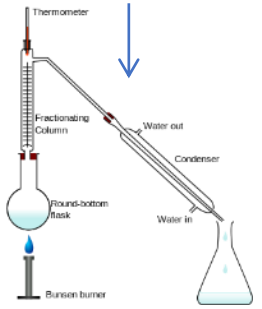
Simple distillation;

Separating a liquid from its solvent



Fractional distillation;

Separating 2 different liquids based on different boiling points

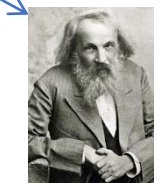


Early tables:

- First attempts to classify elements were made before subatomic particles were discovered
- Based on atomic weight
- Wrong groups used

Mendeleev;

Overcome the problems of atomic weight. He did this by;

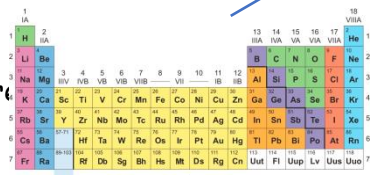


- Leaving gaps
- Changing the order of the elements
- Predicted elements were discovered
- Differences were accounted for by isotopes

Development of the periodic table;

As more elements were discovered scientist tried to classify them

Today;



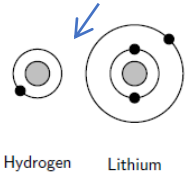
- Elements with similar properties arranged in groups
- Based on properties
- All have the same number of electrons in the outer shell

Modern periodic table;

The arrangement of elements in a table based on proton number, properties and outer electron number

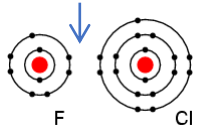
Group 1;

- Alkali metals
- 1 outer electron
- Reactivity increases going down the group



Group 7;

- Halogens
- 7 outer electrons
- Non-metals
- Molecules made of pairs of atoms



Group 0;

- Noble gases
- Unreactive/ stable – full outer shell of electrons
- Don't form molecules easily
- boiling point increases going down group

$^{4}_{2}He$ helium $^{20}_{10}Ne$ neon $^{40}_{18}Ar$ argon

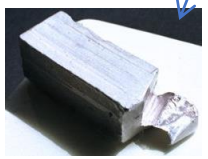
Metals & non-metals;

Non-metals;

- Form negative ions
- Found on right hand side and top of table

Metals;

- Majority of elements are metals
- Form positive ions
- Found on left hand side, middle and bottom of table



Beckfoot Upper Heaton

Year 9 Russia

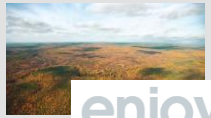
The physical landscape of Russia

Russia can be divided into several vast physical regions.
The Ural Mountain range splits Russia into two – it runs north to south from the Arctic Ocean into Kazakhstan.
The North European **Plain** lies west of the Urals and the Siberian Plain to the east.

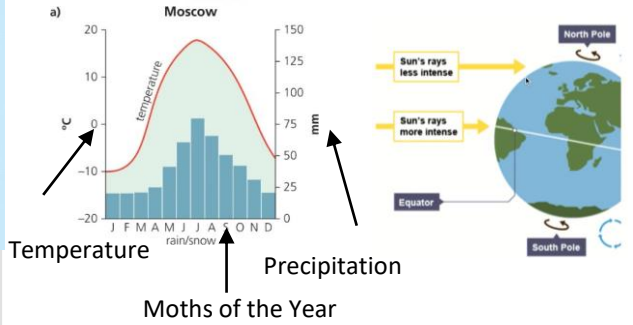
In the east part of Russia the Kamchatka region is a very volcanic region, with 70 volcanoes forming the spine of the **peninsula.**

Most of the coastline of Russia lies along waters that are frozen for many months of the year. As a result Russia has few ocean ports that are free of ice all year round.

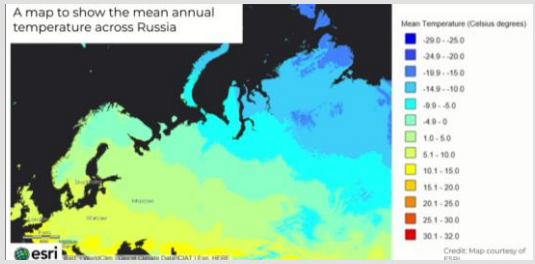
The West Siberian Plain is a huge lowland which stretches 1,600km across and 2,400km from north to south. This is the largest plain in the world. It is a vast frozen are a in winter and huge marshland in summer.



enjoylearnsucceed



What is the climate of Russia?



Most of Russia experiences a **continental climate.** This is characterised by 2 main seasons : long dark cold winters with brief, often warm summers. Russia experiences a very wide range of average temperature between summer and winter depending on location.

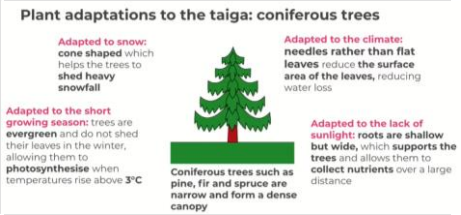
Factors that influence temperature	Factors the influence precipitation (rain, hail, snow, sleet)
Latitude- The higher the latitude the colder the climate this is because the sun is at a lower angle meaning heat energy is spread over a larger surface area.	Prevailing winds- Westerlies pick up moisture over the Atlantic and exhaust the moisture over the land meaning rainfall decreases as you move east.

The Taiga Biome

Animals and plants have to adapt(alter) to survive very cold temperatures, lack of sunlight and short days in the winters.

Ptarmigans are **well-insulated** against the cold temperatures, they have **thick downy feathers** to keep them warm.

Caribous are **migratory** and **move over large distances** at different points of the year to **find food (mosses).**



Biomes in Russia

4 Biomes (large ecosystems) can be found in Russia

-**Temperate Forest** . Trees are deciduous (they lose their leaves in winter).

-**Steppe Temperate Grassland**. Vegetation (trees/ plants) is low in height and sparsely populated.

-**Tundra** Trees are densely populated near lakes and rivers. Generally vegetation are shrubs and grasses and are low in height.

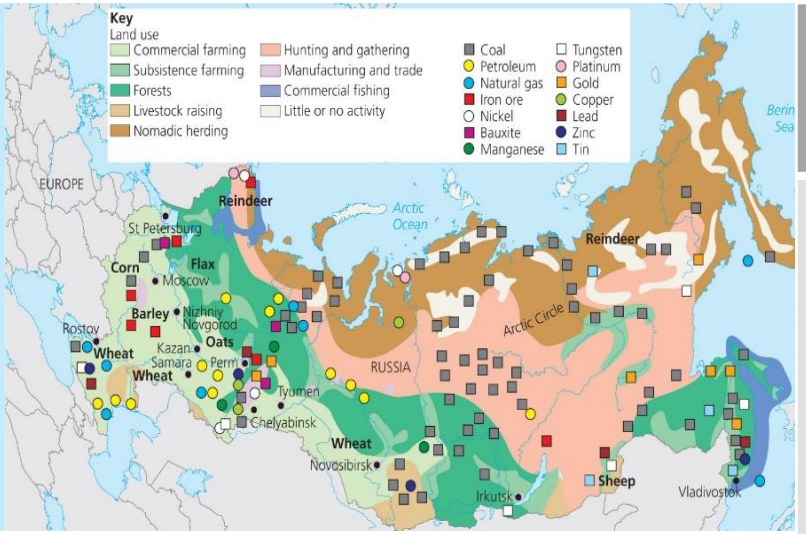
Taiga Forest . Trees are coniferous (don't los their leaves) . Vegetation is dense and tall.

Threats to the Taiga

Deforestation (cutting down of trees) to allow;

-Hydroelectric power
-Gas and oil extraction
-Logging for timber (wood)
-Mineral extraction e.g. Nickel, Iron and Gold.
-Paper /pulp
-Tar Sands – digging up the ground to get to the sands beneath.

+ economic development
+ invest money on infrastructure
+employment opportunities (jobs)
-environmental impacts – washes nutrients out of soil , damages animal habitats.



Population Distribution and Density

There are about 144 million people living in Russia.

The population of Russia is unevenly **distributed** (spread).

Population density = the number of people living in a given area e.g. square kilometre.

Densely populated =high population density

Sparsely populated = low population density

Russia is by far the largest country in the world by area, but is ranked only ninth largest worldwide by population.

Russia is one of the most sparsely populated countries in the world.

70% of Russia's population live in the European part of the country , west of the Ural Mountains.

People usually choose to live in places that have positive features that make life easy and mean communities can grow. These include
-rich soils for farming
-good communication e.g. ports
-temperate weather conditions
-land that can be built upon / not extreme land such as mountains.

Russia and economic activity.

-Russia has an abundance of natural resources.
-Russia produces 20% of the world's natural gas and is the world's leading producer of oil.
-Russia is self sufficient in all major industrial raw materials.
-Russia exports steel and aluminium
-20% of the worlds timber (wood) comes from Russia.
-60% of Russia's GDP is supported by natural resource exportation (selling goods to other countries)
However the vastness of the country along with its harsh physical geography creates problems for economic growth. Much of the natura resources are found in the north and Siberia.

Rank	Country	Crude oil production: barrels per day
1	Russia	10 550 000
2	Saudi Arabia	10 460 000
3	USA	8 853 000
4	Iraq	4 452 000
5	Iran	3 981 000
6	China	3 679 000
7	Canada	3 106 000
8	United Arab Emirates	2 924 000
9	Kuwait	2 515 000
10	Brazil	2 277 000

-Russian transportation has to move raw material vast distances from the empty areas in the east to the manufacturing cities in the west.
Russia depends on railways including the Trans- Siberian rail road.

Economic sector	% of jobs
Primary	9.4
Secondary	27.6
Tertiary	63

Opportunities and challenges of Mineral extraction (mining) in the Tundra Biome

Norlisk City.
-Found in the north of Russia
-120,000 people live there.
- It is the 2nd biggest city on the Arctic Circle
-Covered in p**ermafrost**(permanently frozen ground)

-Largest amounts of Nickel in the world can be found here- which is mined and sold.

Challenges
-**Inaccessibility** (difficult to get there/ transport goods)
-Difficult to build and maintain **infrastructure** (structures and road networks)
-Extreme cold temperatures
-Limited day light hours
-Mining creates environmental damage through industrial waste / fuel spills.

Opportunities
+Plenty of space for development
+Provides economic opportunities to support economic development
+Contributes to the **Gross Domestic Product** (amount of money a country makes)
+Provides **employment opportunities** (jobs)

Knowledge Organiser: Crime and Punishment

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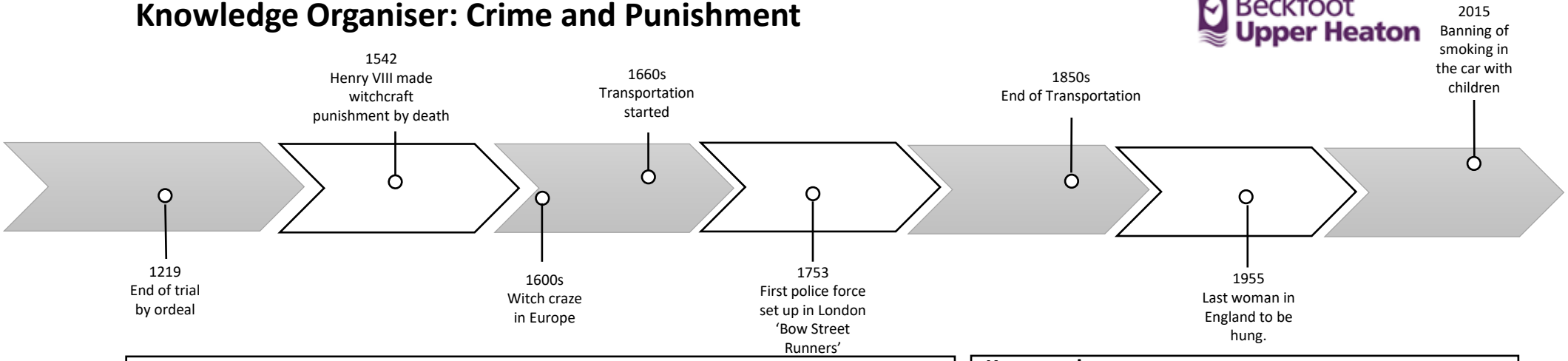

Key vocabulary

Capital Punishment – The legally authorised the legally authorised of someone as a punishment for a crime.

Transportation – Sending of convicted criminals to another country as a punishment.

Trail by ordeal – An accused person to complete one of the ordeals to find out if they are guilty.

Punishment- penalty for a wrong or crime

Hue and a cry – A loud noise to make people chase a criminal

Jury – A group of citizens chosen to hear and decide the facts of a case in a court of law

Witchcraft – Practice of magical skills, spells and abilities.

JPs – Justice of the Peace, in charge of law and order and chosen by the King.

Peeler/Bobbie – Nickname for the police in the 19th century

Continuity – When things stay the same

Key people

James I – King of England 1603-1625

Elizabeth Fry – Campaigned for prison reform (changes)

Timothy Evans – He was executed for killing is daughter but was found to be innocent

Ruth Ellis – Last women to be hanged in the UK in 1955

Knowledge Organiser: Crime and Punishment

	Medieval period 1000-1500	Renaissance 1500-1700	18th and 19th century 1700—1900	Modern era 1900-2020
Crimes	Theft, cattle stealing, arson, heresy, treason	Treason, witchcraft, begging, coin clipping, revolts	Murder, arson, piracy, treason, poaching, chopping down trees	Internet scams and cyber crime, organised crime, terrorism, knife crime
Punishments	Hanging, the Pillory, ducking stool, brank, whipping	Skeffington's irons, the rack, the Scottish boot, Spanish donkey, the press	Execution - hanging, transportation, prison or workhouse	Prison, electronic tagging, probation, fines, criminal record, capital punishment
Who caught the criminals?	Hue and cry, the tithing, constables – then faced ordeals to try criminals	Constables, watchmen, justices of the peace (JPs)	Police - Bow Street Runners, 'Peelers' and 'Bobbies'	Police – then tried in courts (Magistrates or Crown)

	Medieval to the Renaissance	Renaissance to the 18th and 19th century	18th and 19th century to the Modern era
Continuity	Crimes, trials and punishment stayed the same. Constables were still used to police villages.	Lots of crimes stayed the same (such as treason). Punishments were still very harsh including execution.	Capital punishment (execution) was still used until 1950s. Prisons are still used as a punishment and police catch criminals.
Change	Watchmen were introduced – all men were expected to volunteer.	A version of paid police was set up. Less torture was used to punish people.	Crime has changed hugely – the internet and technology has brought many new crimes. Punishments are less harsh.

Religious Studies Medical Ethics Knowledge Organiser – Year9

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Genetic Engineering
All living organisms have DNA this contains information about the living thing and determines things such as colour, shape and size.

Scientists are able to alter DNA by adding or removing information. This alters the traits of the living thing and allows scientist to get the desired end result.

The organism will pass these new features onto its offspring.

There is great debate around the ethics and safety of genetic engineering,

Pros and cons genetic engineering
+ We can alter human beings to make them resistant to disease
+ We can make animals healthier and more productive for food consumption
+ We can change the DNA in crops to make them resistant to cold/ heat and need less water
+ We can create new medicines to beat cancer and cure diseases
+It is using the talents that God has given to Humans

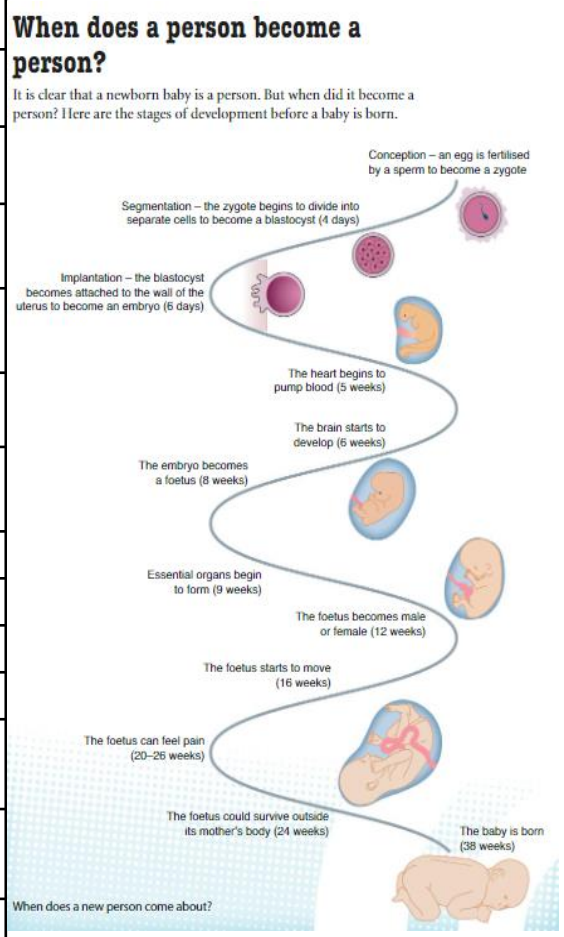
-Changing human DNA could result in a race of superhumans – conception would no longer be natural
-Animals suffer due to genetic changes such as chickens so heavy they cannot stand and without feathers that causes injury
-People have raised concerns about crops being dangerous for the environment and humans
-Genetic engineering could be abused to create dangerous weapons that could kill millions
-Goes against the sanctity of life- only God can give or take life

Technology	What is it?	Benefits	Problems
Saviour Siblings	A child that is genetically modified at creation to save a living sibling.	Can save the life of a sibling. The saviour sibling has their own life	A baby is being used as a means to an end. The life of that baby is not valued in itself.
Reproductive Cloning	The implantation of a cloned embryo	It can be used to revive/ reproduce endangered or extinct species.	Should humans play Gold? The process of extinction is part of natural selection, changing this could have impacts.
Stem Cell Research	An embryo is created using stem cells from another. This is then used to create organs etc. to help cure diseases	Can be used to cure diseases and illness in people already living e.g. some cancers and genetic illnesses.	Embryos are destroyed after use. This raises the issue of when does life begin. Some would argue the creation of life to end is ethically problematic.

Islam
-Generally for genetic engineering
-Believe that Allah has given them these gifts and they should be used.
-Many Muslims believe that the embryo at the early stages isn't a viable life.
-Muslims generally believe that prevention is better than a cure.

Christianity
- Christians are generally against genetic engineering.
- Believe That we are all created in the image of God and entitled to life.
- Believe that it encourages people who are not 'perfect' to be destroyed before they are born.
- Christians believe that every person has the right to life.
- However, some Christians believe that God gave us the gifts of science therefore they are his will.

AID	artificial insemination from donor; a form of fertility treatment
AIH	artificial insemination from husband/partner; a form of fertility treatment
brain death	complete loss of brain function, so that a person is legally dead
conceive	become pregnant
donor	the person from whom an organ is taken for use in a medical procedure to help another person
in vitro fertilisation (IVF):	often referred to as 'test tube babies'; a form of fertility treatment
medical ethics	ideas of what is right/wrong within medicine; principles governing medical advancement
organ transplant	surgically removing an organ, e.g. a kidney, from one person (donor) to put into another (recipient) to save or improve their life
recipient	the person to whom an organ is given in a medical procedure to save/improve life
Conception	the point where the sperm meets the egg.
Embryo	early stages of pregnancy
Fertilisation	the joining of the sperm and egg to form an embryo.
Sacred	to be holy and special
Foetus	an unborn human older than 8 weeks.
Genetic Engineering	changing/adapting the genetic makeup of an embryo.
Saviour Sibling	child that is genetically modified at creation to save a living sibling.
Stem Cell Research	an embryo is created using stem cells from another. This is then used to create organs etc. to help cure diseases
Reproductive Cloning	the implantation of a cloned embryo
Human Cloning	replication of an embryo using the genetic material from another human being.
Therapeutic Cloning	an embryo is created using stem cells from another. This is then used to create organs etc. to help cure diseases
Euthanasia	gentle and easy death of someone who is very ill.
Assisted Suicide	deliberately providing help to someone who is ending their own life.
Compassion-	sympathetic understanding of someone else's suffering.
Dharma	teachings of the Buddha.



LA French Knowledge Organiser: Y9 HT5 - Family

FAMILY

La famille -

Members

Le père

La mère

Le frère

La soeur

Le grand- père

La grand-mère

L'oncle

La tante

Key descriptive phrases

Je m'appelle – I m called

J'ai .....ans – I am .....years old

J'habite à – I live in

Je suis – I am

J'habite avec – I live with

Mon école s'appelle -My school is called

Descriptive adjectives

Gentil (lle) – kind

Drôle – funny

Intelligent – clever

Bete – stupid

Méchant - naughty

Sérieux (euse) – serious

Timide – shy

Bavard - chatty

Key Phrases – Activities at home

Manger un repas – to eat a meal

Regarder la TV – to watch TV

Jouer aux jeux video – to play video games

Parler ensemble- to chat together

Faire les devoirs – to do homework

Faire la vaiselle- to wash up

Ranger ma chambre- to clean my room

Se relaxer ensemble – to relax together

Les salles de la maison

La chambre - bedroom

Le séjour - lounge

La cuisine - kitchen

La salle à manger – dining room

Le vestibule - hallway

Le bureau - office

Le jardin - garden

Le grenier - attic

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Verbs in the Negative

Je ne m'entends pas bien avec – I don't get on well with

Je ne me dispute pas avec – I don't argue with

Je ne parle pas – I don' chat

Je ne passe pas mon temps avec- I don't spend my time with

Je ne rends pas visite à – I don't visit

My friends

Il est – He is

Elle est – she is

Mon ami- my friend (masc)

Mon amie – My friend (fem)

Mon cpain – buddy – (masc)

Ma copine – buddy – (fem)

Ils/ Elles sont – They are (masc / fem)

Les Verbes

Je m'entends bien avec – I get on well with

Je me dispute avec – I argue with

Je parle – I chat

Je passe mon temps avec- I spend my time with

Je rends visite à – I visit

Opinion verbs

J'aime – I like

Je n'aime pas – I don't like

J'adore - I love

Je déteste – I hate

Followed by the infinitive

Additional Grammar – Opinions and adjectives

C'est – It is

formidable – fantastic

chouette – great

barbant – boring

amusant – fun

super – super

intéressant - interesting

Fatigant – tiring

Relaxant - relaxing

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Me, My Family and Friends

Knowledge Organiser

Key Vocabulary

Les noms

l'amour (m)	love
la barbe	beard
le beau-père	step-father/father in law
la belle-mère	step-mother/mother in law
les cheveux (m)	hair (on head)
le copain / la copine	friend, mate
le demi-frère	half-brother/step-brother
la demi-sœur	half-sister/step-sister
la femme	wife
la fille	daughter
le fils	son
le frère	brother
la grand-mère	grandmother
le grand-père	grandfather
les grands-parents (m)	grandparents
les lunettes (f)	glasses/spectacles
le mari	husband
la mort	death
la naissance	birth
le nom	name/surname
l'oncle (m)	uncle
le / la partenaire	partner
le petit ami	boyfriend
la petite amie	girlfriend
la petite -fille	granddaughter
le petit-fils	grandson
le prénom	first name
les rapports (m)	relationships
le sens de l'humour	sense of humour
la sœur	sister
la tante	aunt
les yeux (m)	eyes

Les adjectifs

aimable	kind
aîné(e)	elder
bavard(e)	chatty/talkative
beau / belle / bel	beautiful
bête	stupid/silly
bouclé(e)	curly
célibataire	single
court(e)	short
égoïste	selfish
fâché(e)	angry
frisé(e)	curly
généreux / généreuse	generous
gentil / gentille	kind/nice
gros / grosse	fat
heureux / heureuse	happy
injuste	unfair
jeune	young
joli(e)	pretty
laid(e)	ugly
long / longue	long
méchant(e)	naughty/nasty
mi-long	medium length
mort(e)	dead
né(e) le...	born on the...
paresseux / paresseuse	lazy
pénible	annoying
raide	straight
séparé(e)	separated
sportif / sportive	sporty
sympa	kind/nice
de taille moyenne	medium height
timide	shy
tranquille	quiet/calm
travailleur / travailleuse	hard-working
triste	sad
unique (fils / fille unique)	only (child)
vieux / vieil / vieille	old

Les verbes

s'appeler	to be called
avoir...ans	to be...years old
se disputer	to argue
dire	to say/tell
s'entendre avec	to get on with
se faire des amis	to make friends
se marier	to get married/to marry
partager	to share
sortir	to go out

Key Ideas

- La composition de ta famille
- Les relations avec ta famille et tes amis
- Les qualités d'un bon ami / d'une bonne amie
- Ce que tu fais avec ta famille et tes amis
- Ton opinion du mariage

Key Phrases

je m'appelle	my name is
j'ai ...ans –	I have ....years (age)
dans ma famillle il y a	in my family there is/are
je m'entends avec –	I get on with
je ne m'entends pas avec	I don't get on with
je me dispute avec	I argue with
j'ai les cheveux....	I have hair... (description of hair colour, style etc)
mon père / ma mère est.....	my father/mother is...
mon meilleur ami / ma meilleure amie est...	my best friend (m/f) is...
mes parents sont	my parents are...
un bon ami / une bonne amie est	a good friend (m/f) is....
à mon avis le mariage c'est...	in my opinion marriage is...

URDU	English	URDU	English
ڈاؤن لوڈ	to download	ایک یوٹیوب چینل	a Youtube channel
بیک کھولیں	To de-stress / relax	ناولوں	novels
میری تشویش کو بھول جاؤ	to forget my worries	گھنٹے خرچ	to spend hours
موجودہ تناؤ سے	for / since	پڑھنے	reading

Fancy Phrases

۱۔ کیا میں اس کے بارے میں پرجوش ہوں...
۲۔ یہ مجھے اچھا محسوس ہوتا ہے.
۳۔۔۔۔... پھیلائیں,
۴۔ مجھے لگتا ہے کہ یہ ہے...
۵ جہاں تک میں فکر مند ہوں...

Module 3: تفریحی وقت کی شناخت اور ثقافت

Subtopics

- sport
- Books
- Films
- TV
- Technology
- Cinema

Key questions to answer

کیا آپ ایک کھلاڑی ہیں؟
کیا آپ موسیقی پسند کرتے ہیں؟
اختتام ہفتہ پر آپ کیا کرنا پسند کرتے ہیں؟
کیا آپ کے پاس ایک موبائل فون ہے؟
ٹیکنالوجی اہم ہے؟
آپ کی پسندیدہ فلم / کتاب / کھیل گروپ کیا ہے؟
اگلے ہفتے کے آخر میں آپ کے منصوبے کیا ہیں؟
آپ نے پچھلے ہفتے کے آخر میں کیا کیا؟

adjectives

کم فعال / دلچسپ / اچھا کھلاڑی / بورییت / / مشکل
بُرا تیز / چست / تھکا ہوا / صحت مند / مفید
/ دلچسپ / کمزور / خوفناک / تکبر / تخلیقی / سنجیدہ /
پہلوان / چالاک / منظم / جلد باز / ایماندار /

intensifiers

یہ بھی / بہت / کافی / ایک چھوٹا / زیادہ / بلکہ
انتہائی / تو / تقریبا / بہتر / اچھی طرح

time phrases

گزشتہ کل / جب میں نے تھا... سال
آج / ہر دن / عام طور پر موجودہ
مستقبل کل / بعد میں

Connectives

سب سے — FIRST
پہلے — THEN
پھر — FOR
کے لئے — FOR

Key grammar

- opinions
- Conditional tense
- tenses
- Direct object pronouns
- Past + present

Infinitive	English	present	perfect (I have done)	imperfect (I was / used to)	future (I will do)	conditional (I would do)
چلانے	to play	میں کھیلتا ہوں	ے ادا کرتا ہے	میں کھیل رہا تھا	میں کھیلنا چاہتا ہوں	میں کھیلنا چاہتا ہوں
پڑھیں	to read	میں پڑھ رہا ہوں	میں نے پڑھا ہے	میں پڑھ رہا تھا	میں پڑھتا ہوں	میں پڑھا
جانے کے لئے	to go	میں جا رہا ہوں	میں چلا گیا	میں جا رہا تھا	میں جاؤں گا	میں جاؤں گا
کیا	to do	میں کر	ے کیا	میں کر رہا تھا	میں کروں گا	میں کروں گا
ے	to have	رہا ہوں	میرے پاس	میں نے	ہوں گا	ہوں گا

The Music Industry

Section 1: Unions

Protect worker's RIGHTS!

- ✓ Musician's Union (**MU**) – *artists, composers, instrumental teachers.*
- ✓ Broadcasting, Entertainment, Cinematograph & Theatre Union (**BECTU**) – *Live Sound Technician, Journalist, Roadie.*
- ✓ **Equity** – *Musician, Broadcaster, Actor.*

Section 2: Trade Bodies

Advertises the trade they're in!

- ✓ Music Producer's Guild (**MPG**) – *Those in music production e.g. Producer, Sound Engineer, Studio Manager.*
- ✓ Association of Professional Recording Services (**APRS**) – *Those in the audio industry e.g. Live Sound Engineer, Mastering Engineer, Manufacturer.*
- ✓ Professional Lighting and Sound Association (**PLASA**) – *Those in entertainment events e.g. DJ, Roadie, Lighting Technician.*

Section 3: Agencies

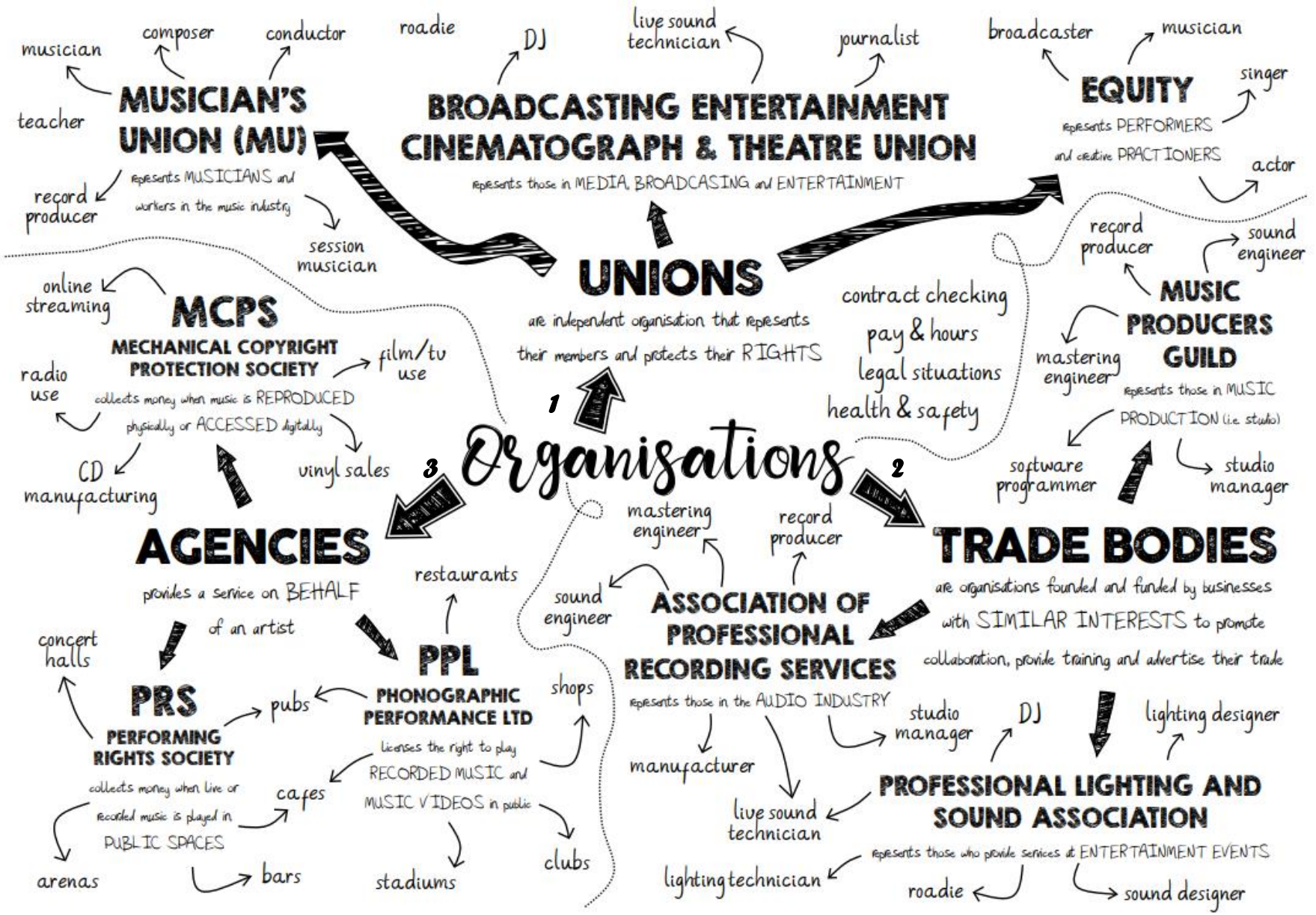
Provides a service for an artist!

- ✓ Performing Rights Society (PRS) – *collects money when music is played or performed in public places.*
- ✓ Phonographic Performance Limited (PPL) – *licence to be allowed to play recorded music/music videos in public places.*
- ✓ Mechanical Copyright Protection Society (MCPS) – *collects money when music is reproduced or accessed digitally.*

Tier 2 Vocabulary:

Collaborate – work together with other people
Produce – to make
Build – join things/add on
Publish – prepare and give out
Record – create an audio, visual or written version that can be used later
Select – choose something
Identify – say what something is
Establish – show that something is true
Label – give something a name
Locate – figure out where something is
Expand – make something bigger
Evaluate – decide if something is good or bad
Communicate – share information with others
Describe – say what something is like
Explain – give reasons
Consider – think about
Conclude – decide whether something is true

The Music Industry



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COMPONENT 1: EXPLORING MEDIA PRODUCTS

What are the different types of creative media product?	
Audio / Moving Image	1. TV Programmes 2. Films 3. Music Videos 4. Animations 5. TV and Radio Adverts 6. Radio Broadcasts 7. Podcasts
Publishing Products	1. Newspapers 2. Magazines 3. Comics 4. Brochures 5. Print Advertisements
Interactive Media Products	1. Websites 2. Mobile Apps 3. E-Magazines 4. Mobile games 5. Online Games 6. Video Games 7. Advertisements

How can you identify the audience for a media product?	
1. Gender	Is it aimed more at a male or female audience? Or both?
2. Age	Is it aimed at a particular age group? E.g. Children / Teenagers
3. Lifestyle	Is it for a specific group with a shared interest? e.g. extreme sports, knitting, cars.
4. Socio-Economic	Is it aimed at a particular class of people? E.g. upper class – Tatler magazine
5. Primary Audience	Who is the product mainly aimed at?
6. Secondary Audience	Who else might be interested in the product or be attracted to it?

What are the purposes of different media products?
To inform the audience
To inspire the audience
To entertain the audience
To benefit the audience
To raise awareness for a cause
To promote a product / service / person
To innovate
To provide escapism
For the benefit of the community
For profit
For experimentation

What is meant by codes and conventions?

The features of media products which are common to most similar products.

For example – Most Magazine covers feature: A title, a larger central image, information about the articles in the magazine, the price, a barcode etc

Develop a brand identity and promotional plan to target a customer profile

How would you describe a brand?

Strategy - a plan of action designed to achieve a long-term or overall aim.

Brand personality - excitement, sophistication, reliability, easily recognisable, engaging etc.

An identity - a visual look, colours, design, typeface, logo placement)

An image - customers' perceptions, low cost, quality, lifestyle)

Why branding is used

- Trust
- Recognition
- Image
- Quality
- Differentiation
- Adding value
- Build customer loyalty

Branding methods and techniques

- A logo (e.g. a graphical symbol, colour, name)
- Sounds/jingles
- Straplines/catchphrases/slogans
- Celebrity endorsements
- Characters (e.g. animated character, animal)

Command verbs for coursework criteria.

Analyse - Separate information into components and identify their characteristics. Discuss the pros and cons of a topic or argument and make reasoned comment.

Create - To originate, e.g to produce a solution to a problem

Demonstrate - Show in an explicit way

Describe - Give an account, including all the relevant characteristics, qualities, or events.

Evaluate - Make a qualitative judgement taking into account different factors and using available knowledge/experience/evidence

Explain -To give account of the purposes or reasons

Identify Recognise, list, - name or otherwise characterise

Investigate - To inquire into (a situation or problem)

Knowledge Organiser: D&T Year 9 Kawaii Mood Light

LED : Light Emitting Diode

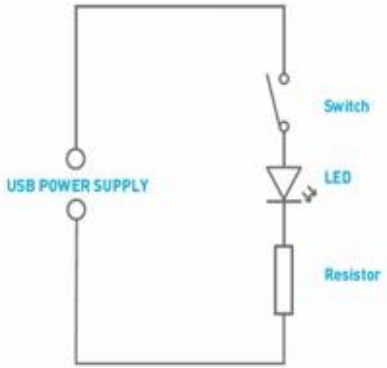
CAD : Computer Aided Design

CAM : Computer Aided Manufacture

Soldering a circuit.

Creating a corner halving joint wooden casing with CAD/CAM acrylic front with the laser cutter.

How the USB Lamp Works



The circuit diagram for the USB lamp is shown above. It is a very simple circuit. The 5V that powers the circuit is supplied from the USB connector.

LEDs can be damaged if the current through them is not limited.

A 0Ω resistor is used with the Colour Changing LED. This is because the required current limit resistor is built into the LED itself, therefore, we simply want to connect this LED directly to the 5V supply.

Finally, the on / off switch allows the circuit to be opened and closed: open the switch to turn the LED off and close the switch to turn the LED on.

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The **Corner Halving Joint** is a simple version of the **Halving Joint** that is commonly used as a quick solution in framework. It uses two pieces of the same thickness with a **corner** section as long as their width cut to half thickness.

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Knowledge Organiser: D&T Year 9 Kawaii Mood Light

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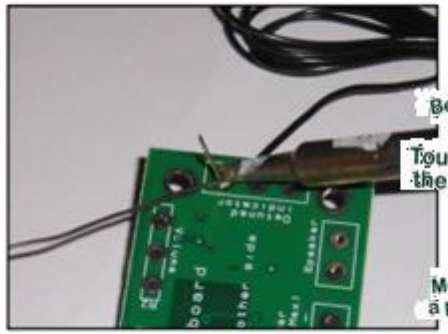
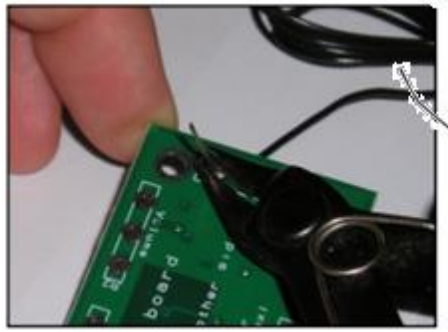
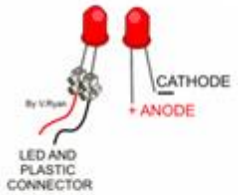
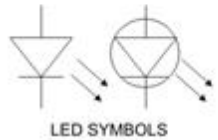
Soldering in Ten Steps

1. Start with the smallest components working up to the taller components, soldering any interconnecting wires last.
2. Place the component into the board, making sure that it goes in the right way around and the part sits flush against the board.
3. Bend the leads slightly to secure the part.
4. Make sure that the soldering iron has warmed up and if necessary, use the damp sponge to clean the tip.
5. Place the soldering iron on the pad.
6. Using your free hand, feed the end of the solder onto the pad (top picture).
7. Remove the solder, then the soldering iron.
8. Leave the joint to cool for a few seconds.
9. Using a pair of cutters, trim the excess component lead (middle picture).
10. If you make a mistake heat up the joint with the soldering iron, whilst the solder is molten, place the tip of your solder extractor by the solder and push the button (bottom picture).







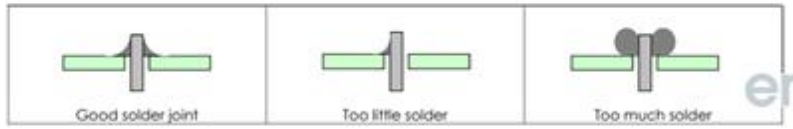


Light Emitting Diod , are very rugged, they last a very long time and they are an optical source. (A LIGHT SOURCE)
LEDs produce red, green, yellow, or orange light. They are used in a range of products. Can you name any ?
Infrared LEDs are also available although light from this type cannot be seen by the human eye. These are used in security devices.
LEDs are part of the diode family, consequently they must be connected the right way round or current will not pass through. They are usually protected by a resistor. (See DIODE information sheet).

A SELECTION OF THE MOST POPULAR COLOURS

ENLARGED LED - NOTICE THE LONG AND SHORT LEG

Solder joints



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Knowlege Organiser: Year 9

1.Experiment with a range of mark making techniques in pen and pencil

2. Explore the quality of line and mark making using different drawing techniques.

3. Complete a colour theory A3 sheet using block paints.

4. Experiment with different mark making , blending, and layering with pencil techniques

5. Apply colour theory knowledge and blending techniques to new islamic design idea.

6. Enlarge a section of Islamic design and trace onto mount board. Outline the pattern using string and glue.

7.Complete an Islamic tile demonstrating accurate rotation and printing skills.

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Year 9 Carbohydrate Knowledge Organiser

The main **function** of carbohydrates is to provide energy for the body.

TYPES OF CARBOHYDRATES

STARCH

Potatoes, rice, pasta, bread and yams.
These are also known as **complex carbohydrates** as they are made up of many simple sugars joined together.

DIETARY FIBRE

Found in cell walls of fruits, vegetables and cereals.
This is also called a complex carbohydrate as it is made up of many simple sugars joined together.

SUGAR

All sugars, treacle and syrups, honey, jam and marmalade.
These are also known as **simple carbohydrates** because they are either simple sugars (glucose) or double sugars (sucrose).

Too much?

If the diet contains more carbohydrate than the body needs, it will be tuned into fat and stored in the body. This can lead to **obesity**.
If too much sugar is eaten, this can lead to **tooth decay**.

THE IMPORTANCE OF FIBRE

Fibre is important as it keeps the **digestive system** healthy by helping the food waste travel through the body more easily.
If you don't eat enough fibre, this can cause **constipation**, which can eventually lead to cancer of the bowel.
Fibre can reduce your chances of getting **heart disease** and type 2 **diabetes**.
The recommended amount of fibre for adults is 30g per day.

✗ **Free sugars** are **added sugars** such as sugar, syrup and honey which are harmful to your health.

✓ **Fruit sugars** are natural sugars in the cell walls of plants.

Knowledge Organiser: Yr9 Textiles—Astrology Dream Catcher

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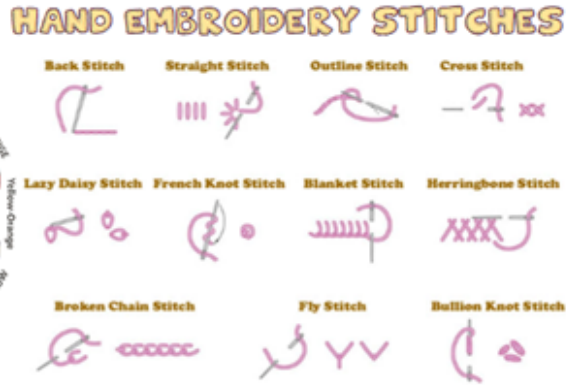
Key words/ terms:	
Embellishment	An additional decorative feature. I.e: beads, sequins, ribbons etc.
Embroidery	Stitches that create a pattern/design on the surface of fabric – by hand or machine
Needle	A thin piece of metal with a point at one end and an 'eye' at the other for thread to attach – then used to sew
Sewing	The process of passing thread through a fabric to join together or add decoration
Thread	A piece of spun polyester or cotton to sew with
Cotton poplin	A fabric made by weaving natural cotton fibres together
Colourway	A range of colours that are used within a design, often showing a theme
Dye	A pigment that is added to the surface of fabric to change the colour
Embroidery hoop	A pair of rings that slot into one another to hold fabric taught
Fabric paint	A pliable paint that adheres well to fabric and remains flexible even when dry and set
Fibre	A tiny thread-like materials that are spun together to make threads, yarns and fabrics. Can be natural, man-made (synthetic) or a blend of both
Fabric	A sheet material made from weaving, knitting, matting or sticking fibres together
Astrology	The study of celestial bodies (stars and planets) and their effect on the natural world, human affairs and behaviours

Design Process	
Design brief	A statement outlining what is to be designed and made
Task analysis	Exploring the brief and planning what research and tasks need to be completed
Client profile	Relevant information about the client or consumer who you are designing/ making a product for
Design ideas	A range of potential solutions to the problem
Final design	A presentation drawing of chosen idea
Production diary	A record of the making/ practical work
Evaluation	Reviewing strengths and weaknesses of final product and design work



Useful links/ further reading:

Hand Embroidery for Beginners - Part 2 | 10 Basic Stitches | Handi-Works #52 - YouTube

50 Hand Embroidery Stitches: Beginners Tutorials by HandiWorks -

Technical skills covered:
Surface dying
Hand embroidery
Fabric painting
Embellishment (beading, sequins etc.)

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What we will use:	
Practical Equipment	**Materials**
Fabric dye	Cotton poplin
Hand needles	Embroidery hoop
Fabric scissors	Embroidery thread
Fabric paint	Embellishments
Fabric pens	

Knowledge Organiser: Yr9 Textiles—Sock Monkey

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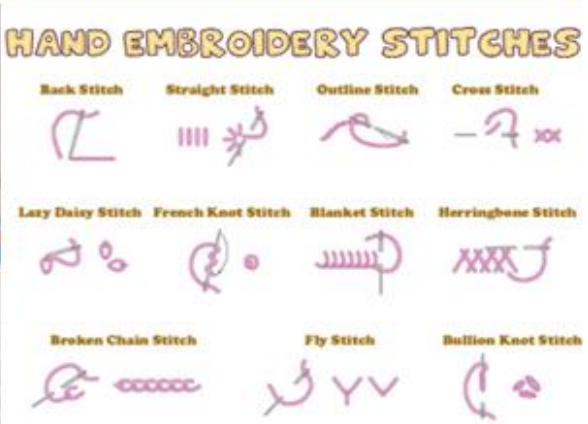
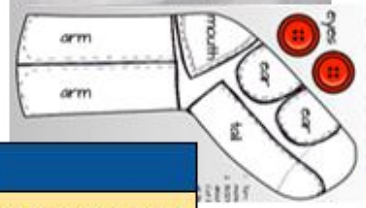
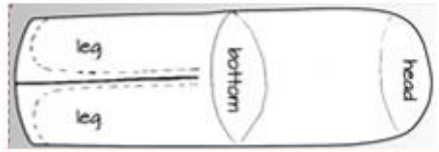
Key words/ terms:	
Embellishment	An additional decorative feature. I.e: beads, sequins, ribbons etc.
Embroidery	Stitches that create a pattern/design on the surface of fabric – by hand or machine
Seam Allowance	The distance from the edge of the fabric to where you sew the fabric together
Seam	Where two pieces of fabric join together by stitching
Pin	A thin piece of metal with a flat and pointed end to temporarily join things together
Needle	A thin piece of metal with a point at one end and an 'eye' at the other for thread to attach – then used to sew
Sewing	The process of passing thread through a fabric to join together or add decoration
Thread	A piece of spun polyester or cotton to sew with
'Bagging out'	The process of sewing the 'right sides' of fabrics together and then turning inside-out to hide the seams, hems and raw edges
Fibre	A tiny thread-like materials that are spun together to make threads, yarns and fabrics. Can be natural, man-made (synthetic) or a blend of both
Fabric	A sheet material made from weaving, knitting, matting or sticking fibres together
Knitted fabric	The looping of yarns to make a sheet material. Knitted fabric is typically stretchy, insulating and unravels when cut

Design Process	
Client profile	Relevant information about the client or consumer who you are designing/ making a product for
Design ideas	A range of potential solutions to the problem
Final design	A presentation drawing of chosen idea
Production diary	A record of the making/ practical work
Evaluation	Reviewing strengths and weaknesses of final product and design work







Useful links/ further reading:
Hand Embroidery for Beginners - Part 2 | 10 Basic Stitches | HandiWorks #52 - YouTube
50 Hand Embroidery Stitches: Beginners Tutorials by Handi-Works - YouTube

Technical skills covered:
Embellishment (embroidery, beading, etc.)
Fabric cutting/ use of patterns
Seam Allowances
'Bagging out'

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What we will use:	
Practical Equipment	Materials
Fabric scissors	Socks
Pins	Embroidery thread
Hand needles	Toy stuffing
	Googley eyes

Physical Components of Fitness (FAMMSB)

Skill components of Fitness (ABCPR)

PRINCIPLES OF TRAINING

FITT PRINCIPLES

FREQUENCY

HOW OFTEN YOU EXERCISE

E.G. 3 X PER WEEK

INTENSITY

HOW HARD YOU EXERCISE

E.G. 60-85% OF MAXIMUM HEART RATE (MHR)

TIME

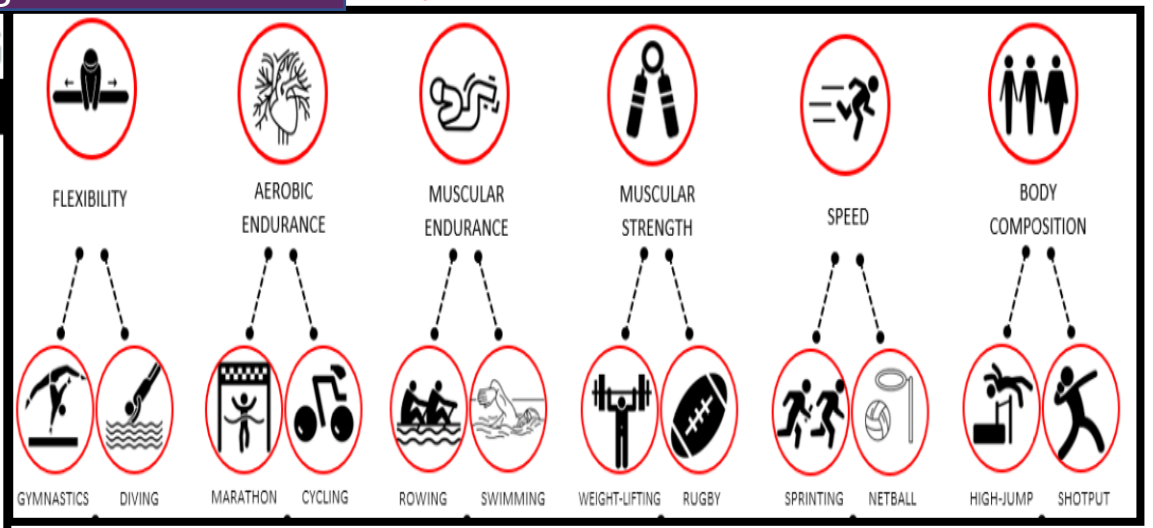
HOW LONG YOU EXERCISE FOR

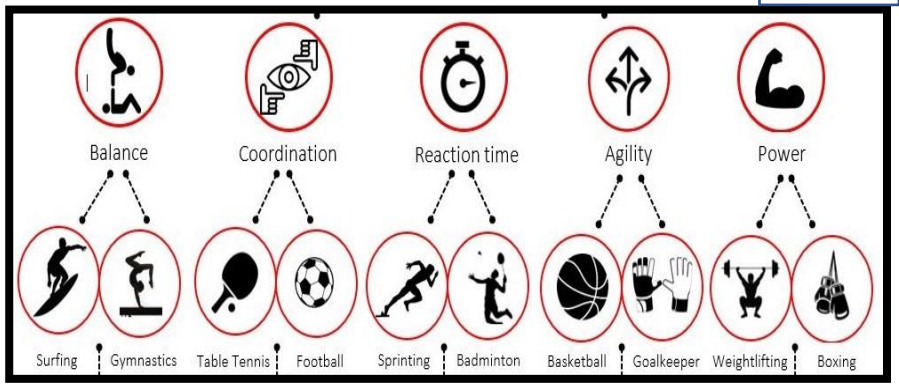
E.G. A 40-MINUTE EXERCISE SESSION

TYPE

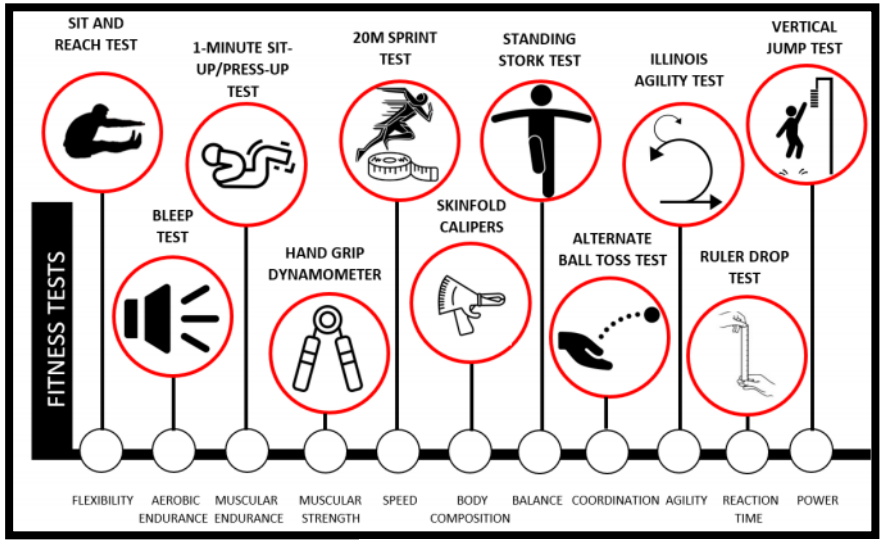
WHAT KIND OF EXERCISE YOU DO

E.G. CIRCUIT OR PLYOMETRICS





Method of Training	Component of Fitness
Continuous Training	Aerobic Endurance
Fartlek	Aerobic Endurance
Interval Training	Aerobic Endurance/Speed
Circuit Training	Aerobic Endurance/Muscular Strength/Muscular Endurance
Hollow Sprints	Speed
Accelerative Sprints	Speed
SAQ	Speed/Agility
Plyometrics	Power/Muscular Strength
Resistance Training	Power/Muscular Strength/Muscular Endurance
Free Weights	Power/Muscular Strength/Muscular Endurance
Static Stretching	Flexibility
Dynamic Stretching	Flexibility
Proprioceptive Neuromuscular Facilitation (PNF)	Flexibility



THE MATHS

WHAT HEART RATE (HR) DOES A 38 YEAR OLD NEED TO BE WORKING BETWEEN TO BE EXERCISING AEROBICALLY?

REMEMBER AEROBIC ZONE = 60-85% MAXIMUM HEART RATE (HR MAX)

STEP 1 - WORK OUT MAX HR

220 – 38

ANSWER = **182**

→

STEP 2 - WORK OUT 60% OF HR MAX

182 X 0.6 (60/100)

ANSWER = 60% = **109**

→

STEP 3 - WORK OUT 85% OF HR MAX

182 X 0.85 (85/100)

ANSWER = **155**

→

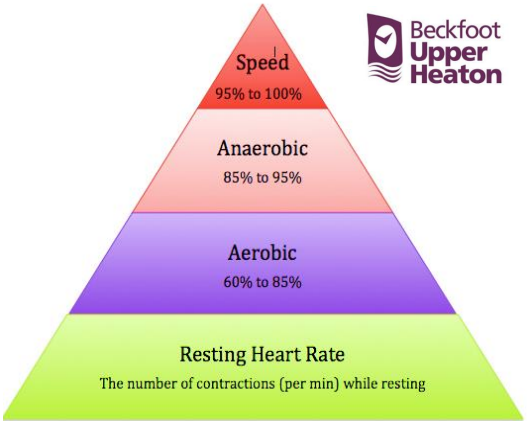
AEROBIC TRAINING HR ZONE FOR A 38 YEAR OLD:

109-155 bpm

Borg Scale – Rate of Perceived Exertion (RPE) – value x 10 to find out heart rate.

Max Heart Rate – 220 - age

6	No exertion
7	
8	
9	
10	
11	Light
12	
13	Somewhat hard
14	
15	Hard (heavy)
16	
17	Very hard
18	
19	
20	Maximal exertion



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