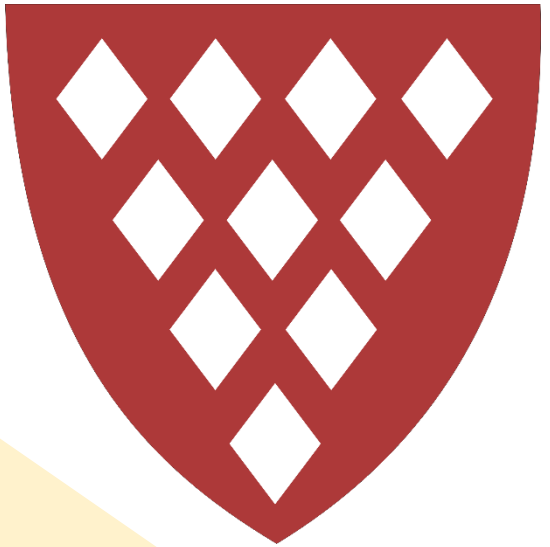
KNOWLEDGE ORGANISER BOOKLET

YEAR 9 – CYCLE 1

2025 - 2026



Name:

Tutor Group:

Contents

Instructions for Use

For all of your subjects, there are certain **facts** that you **need** to know in order for you to best understand the content you study in lessons.

In this booklet are ***Knowledge Organisers*** for each subject which contain the core concepts that you have to know to be successful in your lessons.

The **first 15 minutes** of Home Learning is the same in all subjects (apart from Maths) and should be completed in your single **Home Learning exercise book**:


Look: read a specific section of the *Knowledge Organiser*.


Cover: cover it over or put it to one side;


Write: from memory, write out as much of the information as you can remember for that section;


Check: check back with the *Knowledge Organiser*. Anything missing or incorrect, add in purple pen.


Review: information you didn't recall the first time you may wish to check in a different format, such as repeating the process or creating revision cards.

The next lesson, your teacher will check that you have completed this process and you will be quizzed in your subject lesson to see what you can recall.

Instructions for Use : Example

Show My Homework **for Geography says: ‘Knowledge Organiser: How to Read Grid References’.**

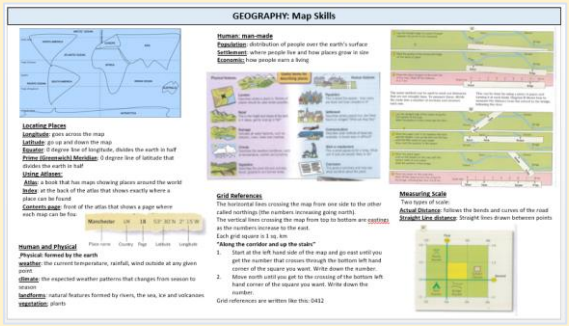
1. L**OOK:** carefully read the section of the *Knowledge Organiser* which you are learning.

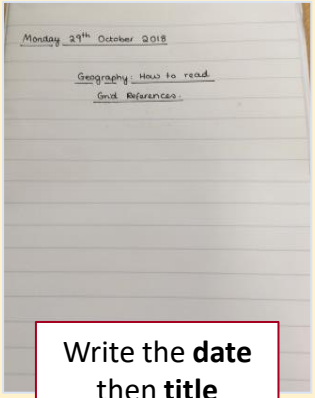
2. **COVER:** cover it over or put it to one side.

3. **WRITE:** write out as many details as you can from memory.

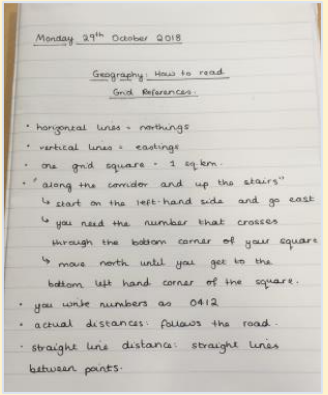
4. **CHECK:** check back over your answer with the *KO*. Anything which is missing or incorrect, add in in **purple pen**.

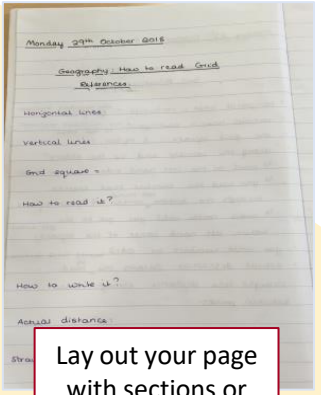
5. **REVIEW:** if you had significant gaps or parts you didn’t understand, repeat the process from Step 1.



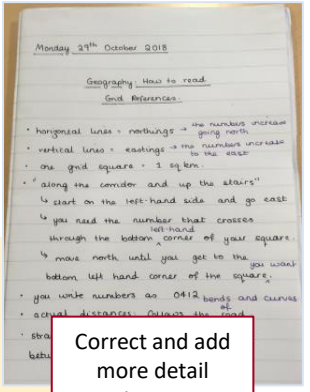


Write the **date** then **title** (**subject: focus**)





Lay out your page with sections or questions to help



Correct and add more detail using your purple pen.

sparx is your Maths homelearning

You do not have a knowledge organiser for maths. This is because the best way to remember and understand mathematics is to do it. Write your Sparx password in the space below so you don't forget it.

Sparx username: ……

Sparx password: ……

How do I log on?

Go to www.sparxmaths.uk. Select ***Kingsbridge Academy*** and enter your username and password.

What do I have to do each week?

Complete all of your Compulsory Section Sparx homework and get it 100% correct. If within your hour of home learning time you should complete the target and optional sections which are designed to help you make better progress in Maths.

How long should it take?

Sparx will adjust your homework so it should take about 1 hour. If you find yourself taking longer than this you should make sure you are coming for help on the difficult bits.

When should I do it?

You should complete your Sparx homelearning in the 4 allocated 15 minute slots in your homelearning timetable

What if I get stuck or can't do it?

You can watch the videos, ask a friend or parent or ask a maths teacher (in person or by email).

Why do I get different questions to my friend?

Sparx creates a custom homework just for you – because you are an individual. We are really pleased that we are able to offer you personalised homework.

Why do I have to do 100%?

We care about you and believe that you deserve to do well in maths. Students who do all questions learn more and get better results.

Year 9 English – Narrative Writing: Structure (1)

Structure is the arrangement or organisation of ideas within a whole text; how different parts of something are put together.

Writers structure their writing to engage the reader and to achieve their desired effect. Explore the different effects various structural devices can have in the table below.

Key Words: Structure		
Method	Definition	General Effect:
cyclical structure	When the ending of the text reflects the beginning	shows how much a character and their situation have (or haven't) changed
contrast	The presentation of things that are opposite to each other	highlights the difference between two things
chronological	In time order (e.g. chronological story structure = told in the order in which it happened)	allows the reader to follow the events of a story as they are experienced by the character; aids empathy
flashback	When a story goes back to a moment in the character's past	allows the reader access to significant events in the character's past
links back	When an idea in a text reminds us of something that we read earlier in the piece	helps us to notice how ideas have changed or developed
foreshadow	To hint at something that will (or might) happen later in the text	creates intrigue as we want to know whether our predictions are correct.
repetition	Using a significant word, phrase or idea on multiple occasions	makes a word / idea stand out: it will usually be significant

Extension and revision: additional structural methods for narrative writing		
Method	Definition	General effect
establish	To set up or introduce a topic / setting / character at the beginning.	introduces the reader to the setting / character / mood of the text
develop	To build up details about a topic / setting / character within a text	gives the reader more information about important aspects of the text
zoom in	To move from a broad, general description to focus on a more specific area	focuses the reader in on significant details – makes them important
zoom out	To move from a small focus area to a broader, more general description	allows the reader to see the wider context of characters / events
external action / description	Description of things that are happening in the outside world of the character; things that a person in the character's world would be able to perceive.	allows us to see what a character's world is like and what is happening
internal thoughts	Access to the character's inner personal thoughts and feelings; being metaphorically 'in the character's head'.	creates a personal tone; helps us to understand the character's thoughts and feelings; guides our response to the character
dual perspective	A story told from two different narrative viewpoints / two different characters' experiences.	gives alternative viewpoints; can allow us to view events going on in different places / at different points in time

Year 9 English – Narrative Writing: Language (2)

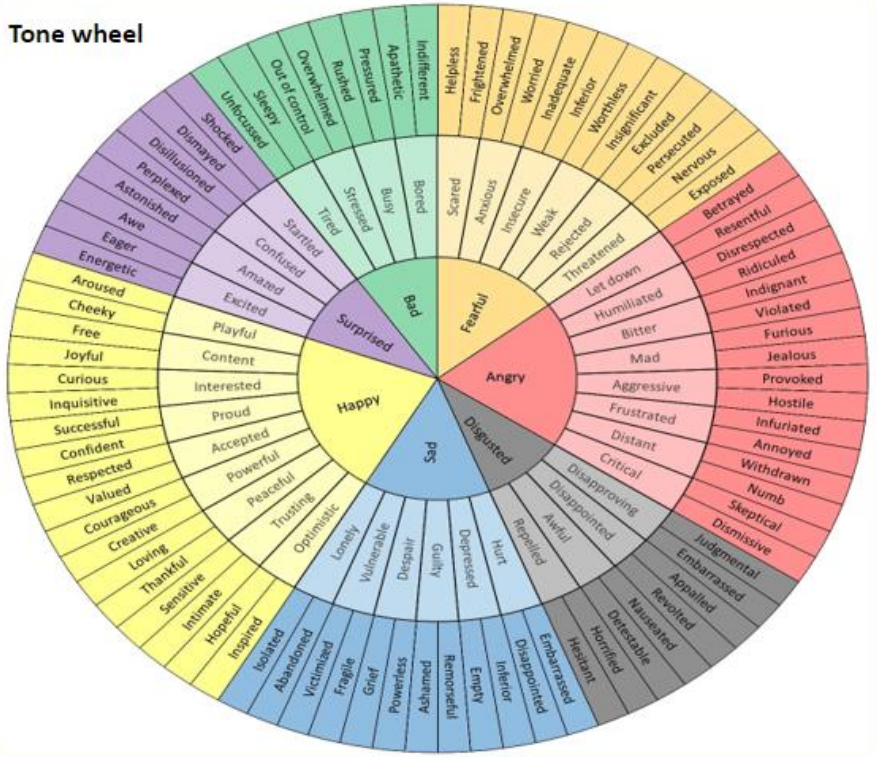
A **narrative** is a story; a spoken or written account of events.
Short stories are even shorter than novellas (like Animal Farm) — just as their name implies. They're **complete** narratives **focused on** a core event or idea

Key language methods to help craft your narrative writing

Method	Definition	General Effect:	Example
semantic field	A group of words that belong to the same topic area / theme.	Used to highlight or develop a key theme or atmosphere	Overheard, the **army** of clouds **massed** as they prepared to **attack**. Each **battalion** edged closer and closer – ready for **battle**.
short sentence	A sentence with a limited number of words (often fewer than 5 words).	Highlights a significant idea or event within the text.	It was over. It had ended.
sensory imagery	The use of language that helps a reader to imagine sights, sounds, tastes, smells and textures. Sensory imagery may include descriptions of one or more of these senses.	Many writers use **sensory imagery** to help their readers to imagine the setting of their story.	It was **too hot. Too bright.** The **smell of donuts** wafted over the bright courtyard. The **sound of laughter** heard of the busy road.
immersive description	The writer uses precise descriptive details	To help the reader to imagine that they are within the world of the story and almost experience the world that they are reading about.	It was too hot. Too bright. The white walls of the veranda glared stridently in the sun. The bougainvillea hung about it, purple and magenta, in livid balloons.

Tone: The mood created by the author's language choices; the way the text makes us feel.

Tone wheel



Year 9 English – Narrative Writing: Language (3)

Extension and Revision: Language terminology

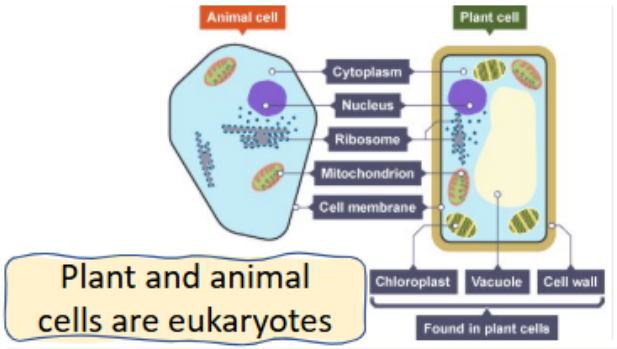
Method	Definition	General Effect:	Example
imagery	A general term for descriptive language that helps the reader to *imagine* something that is being written about.	Enables the reader to create a mental picture of a situation, particularly an unfamiliar one or one created by the writer in fiction.	The snowflake danced to the ground as the view turned a pearly white before his eyes.
metaphor	A form of imagery where one thing is described as *being* something else.	Allows the reader to create a vivid mental picture; can convey emotions through implication.	**The lake was glass** in the moonlight.
simile	A form of imagery where one thing is described as being similar to something else, using the words 'like' or 'as'	Allows the reader to create a vivid mental picture, often by comparing something new with something more familiar.	She crept towards the doorway – **as quiet as a mouse.**
personification	A form of imagery where a non-living object is described using human actions, features or emotions.	Allows the writer to assign emotions to the object; often helps to develop atmosphere.	**The sofa hugged the weary traveller** – comforting him after his terrible journey.
symbol	An object used to represent an idea or concept.	Helps to present abstract ideas in a more sophisticated way.	A wedding ring symbolises eternal love.
motif	An image or symbol that is repeated throughout a story.	Shows how an idea changes or develops	The lift was a motif in 'Long Way Down'.
colour imagery	Use of colours to form part of the description.	Can allow the writer to use connotations of the colours to develop meanings.	The **green blue** translucent sea.
adjective	Words that describe what a person, place, thing or emotion is like.	Enables the reader to develop a vivid mental picture. Look for connotations.	The **iridescent** lake glistened in the **wintery**, but yet **warming**, sunlight.
verb	Words that name actions or states of being. Every sententence must contain at least one.	Think about the connotations of the verbs used.	Lenny **slashed** at Curley with his fists.
adverbial	A word or phrase that gives information about the verb.	Tell us how, when, where or how often the verb happens.	**Sadly**, he was **always** too late to enter.
first person	Story told from the viewpoint of a character within it.	Gives us access to the character's inner thoughts as we follow their experiences.	**I** walked towards him, **my** hands trembling.
third person	Story told from the viewpoint of someone who is watching it happen.	Allows us to observe the action while giving us access to the wider perspective or views of multiple characters.	**She** walked towards him, **her** hands trembling.

Sensory Imagery: Useful Vocabulary for Describing Sensations.

Sight (colour and light)	Smell	Sound	Taste	Touch
dim	stale	melody	sickly	grainy
shadowy	acrid	murmur	tart	gelatinous
hazy	smoky	mutter	acidic	abrasive
translucent	earthy	mumble	sour	sharp
iridescent	putrid	hush	bitter	serrated
kaleidoscopic	acrid	whisper	bland	damp
opalescent	acidic	whistle	salty	corrugated
indistinct	overpowering	cacophony	nauseating	cratered
garish	sickening	symphony	piquant	silky
pallid	aromatic	discordant	luscious	bristly
drab	pungent	harmonious	medicinal	feverish
gaudy	fetid	melancholy	warming	balmy
radiant	perfumed	clamour	rich	velvety
tarnished	antiseptic	monotone	artificial	spongy
camouflage	fragrant	dirge		insubstantial

Biology: Year 9 Cycle 1 Knowledge Organiser – Cells, Microscopes and Transport

Lesson 1: Animal and Plant cells



Plant and animal cells are eukaryotes

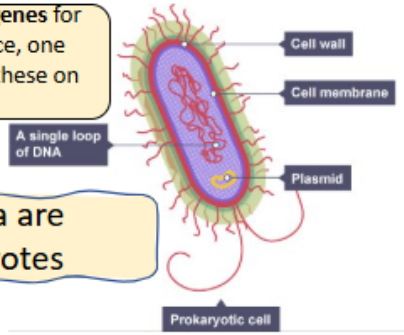
Sub-cellular Structure	Function
Nucleus	Controls the cell – contains genetic material.
Cell membrane	Controls what goes in and out of the cell.
Cytoplasm	Chemical reactions happen here. Contains enzymes.
Mitochondria	Aerobic respiration happens here that releases energy for the cell.
Ribosomes	Proteins made here.
Chloroplasts	Photosynthesis happens here that makes food for the plant.
Cell Wall	Made of cellulose, stops the plant cells bursting.
Permanent vacuole	Contains cell sap, a weak solution of sugar and salts.

Questions:

1. What is the function of the sub-cellular structures?
2. Which structures do you find in most animal cells?
3. Which structures do you find in most plant cells?
4. Which structures are common to both plant and animal cells.
5. Which structures are only found in plant cells?

Lesson 2: Eukaryotes and Prokaryotes

Plasmids contain **genes** for antibiotic resistance, one bacteria can pass these on to another.



Bacteria are Prokaryotes

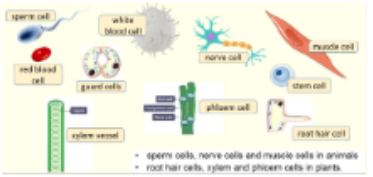
- **Prokaryotes** are more commonly called **bacteria**
- **Unicellular** – made up of **one cell**
- **Prokaryotes** are smaller than **eukaryotic cells.**
- **No nucleus**
- **Circular loop of DNA** – DNA in eukaryotes is found in straight chains (**linear**).
- May have one or more smaller rings of DNA called **plasmids.**

Questions:

1. Which structures do eukaryotes and prokaryote cells both have?
2. Which structures do prokaryotes have that eukaryotes don't have?
3. What is the DNA like in prokaryotes compared to eukaryotes?
4. What is the function of **plasmids**?

Lesson 3: Specialised cells

- **Differentiation** is the process by which a cell changes to become **specialised** for its job.
- Cells become **specialised** by gaining or losing certain **sub-cellular** structures, so they adapt to do a certain job.

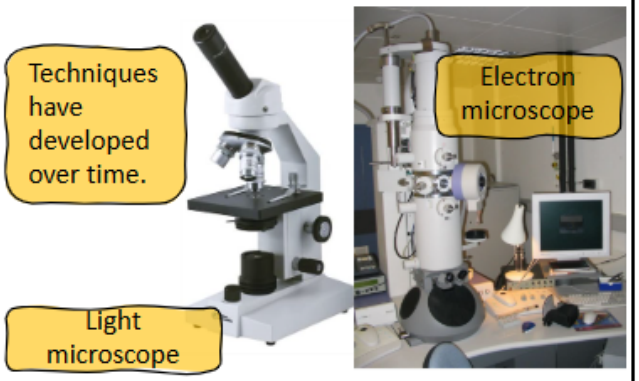


Cell	How it is specialised
Sperm cell	**Tail** to swim to egg. **Lots of mitochondria** release energy for movement. **Acrosome** stores enzymes to break down egg membrane. ½ genetic material.
Nerve cell	Carry electrical signals around body. Long (cover more distance). Branched (connect to other nerve cells).
Muscle cell	Lots of mitochondria to released the energy to contract and relax. **Specials proteins** that slide over each other. Store **glycogen**.
Root hair cell	Increase **surface area** for absorbing water and minerals from the soil. **Many mitochondria** to release energy for **active transport** of **minerals.**
Xylem Cell	**Hollow** so water and mineral ions easily move up them. Strengthened with **lignin** to help support plant and withstand the pressure of water moving up.
Phloem cell	**Sieve plates** allow water carrying dissolved food to move up and down through holes. Lose a lot of their **internal contents** so food can flow freely.

Questions:

1. What is differentiation?
2. What happens when a cell differentiates?
3. What is a specialised cell?
4. What are the adaptations of a sperm cell, nerve cell, muscle cell, root hair cell, xylem cell and phloem cell that allow them to do their specific jobs?

Lesson 4:Types of microscopes

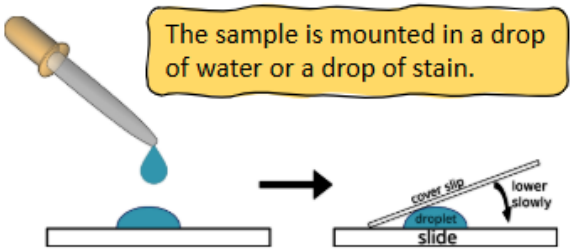


- **Electron microscopes** have a higher **magnification** and **resolution** than light microscopes.
- **Magnification** – the number of times bigger the **image** is than the **real/actual** object.
- **Resolution** – the ability to **distinguish** between two points, a higher resolution produces a sharper image.
- **Electron microscopes** let us see **smaller things** in more detail, so their invention has allowed scientists to see and understand **sub-cellular structures** like **chloroplasts, mitochondria, plasmids and ribosomes.**

Questions:

1. Which microscopes have the highest magnification?
2. Which microscopes have the highest resolution?
3. What is the definition for magnification?
4. What is the definition for resolution?
5. What are subcellular structures and how have electron microscopes increased our understanding of them?

Lesson 5:RP Microscopes



1. Place the specimen slide on the stage.
2. Shine light through specimen.
3. Rotate so the x4 is in line with the stage.
4. Turn the course focus so it is as close to the stage as possible.
5. Look down eyepiece and focus using course focus knob.
6. Rotate so the x10 is in line with the stage.
7. Focus the slide by turning the course focus knob.

For higher magnifications:

5. Rotate the objectives so the high power objective, e.g. x40, is in line with the stage.
6. Bring the slide back into focus using the fine focus adjustment.

Questions:

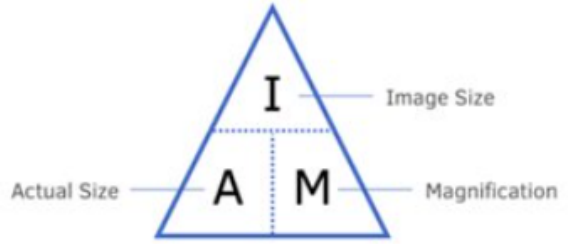
1. What should be added to the sample to produce **contrast** so different parts of the cell are visible?
2. Which part of the microscope do you use to bring the sample into focus at x4 magnification?
3. Which objective would you use with a x10 eyepiece to give the highest magnification?
4. What rules should you remember when making biological drawings of the sample?

Lesson 6: Calculating Magnification

Magnification – is always given an X sign

Image – usually the bigger number in the question

Actual – usually the smaller number in the question



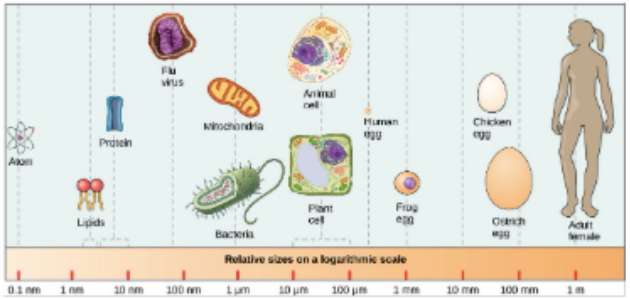
Cover up the thing you're trying to find. The parts you can still see are the formula you need to use.

$$\text{magnification} = \frac{\text{width of image}}{\text{width of real cell}}$$

Questions:

1. Write out the equation you would use to calculate the active width/size of an object.
2. Write out the equation you would use to calculate the width of an image if you knew what its real size and magnification were.
3. Write out the equation you would use to work out the magnification of an image.

L7:Estimating Size and Scale of Cells



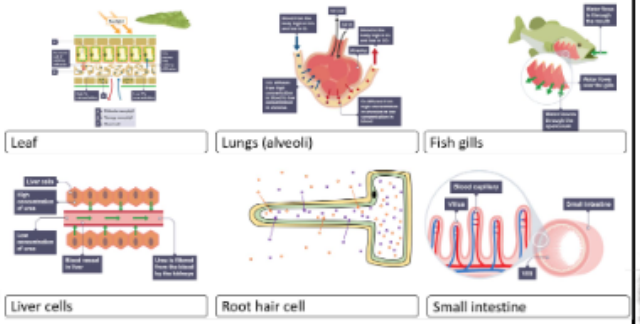
Example (not to scale)	Units being used	Relationship to a metre	How many are there in a metre?	Standard form (m)
Width of finger	**1cm** centimetre	1/100th (hundredth)	**100**	1×10^{-2}
Human egg cell	**1mm** millimetre	1/1 000th (thousandth)	**1 000**	1×10^{-3}
Bacterium	**1µm** micrometre	1/1 000 000th (millionth)	**1 000 000**	1×10^{-6}
Buckminsterfullerene (chemistry GCSE)	**1nm** nanometre	1/1 000 000 000th (billionth)	**1 000 000 000**	1×10^{-9}

Questions:

1. What are the units for centimetres, millimetres, micrometres and nanometres?
2. Put these things in order of size biggest to smallest.
   ribosome nucleus cell virus mitochondria
3. How many micrometres are their in a mm? cm? m?
4. A nerve cell has a length of 3mm, how many µm is this?

Lesson 8:Diffusion

Diffusion is the spreading out of particles in solution, or gas, resulting in a net movement from an area of **higher concentration** to **lower concentration.**



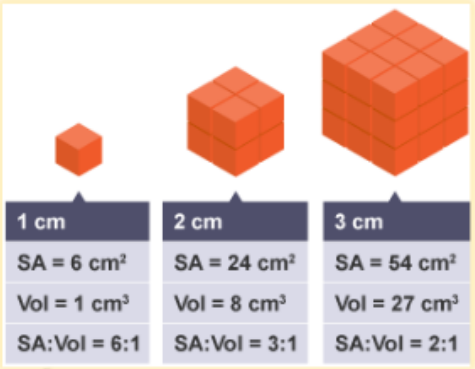
Factors that affect the rate of diffusion:

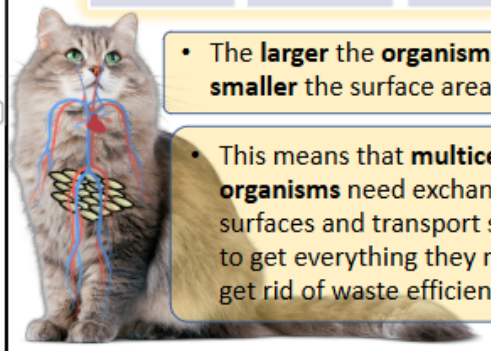
- The difference in concentrations (concentration gradient).
- The temperature
- The surface area of the membrane

Questions:

1. What is the definition of **diffusion**?
2. Which two gases are involved in **gas exchange?**
3. Which waste product diffuses into the blood plasma for excretion in the kidney?
4. What happens to the **rate** of diffusion if the temperature is increased?
5. How else can the **rate** of diffusion be **increased?**

Lesson 9:Surface Area:Volume





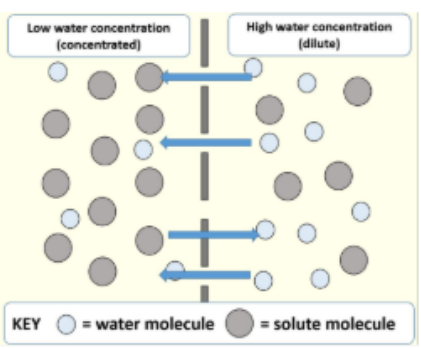
- The **larger** the **organism** the **smaller** the surface area:volume
- This means that **multicellular organisms** need exchange surfaces and transport systems to get everything they need and get rid of waste efficiently.

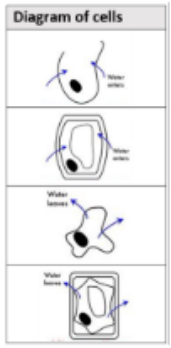
Questions:

1. What is the surface area: volume of a cube that has sides 2cm long?
2. What is the relationship between sized and surface area to volume ratio?
3. Why don't small organisms like bacteria (prokaryotes) need a transport system?

Lesson 10: Osmosis

Osmosis is the movement of water molecules from a **dilute** to a **concentrated** solution through a partially permeable membrane.





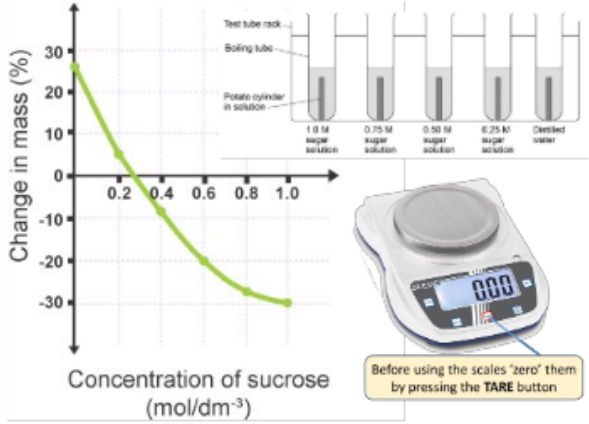
Turgid – plant cells in more dilute solution
Plasmolysed – plant cells in a more concentrated solution.
Lysed/burst – animal cells in a more dilute solution
Shrivelled/crenated – animal cells in a more concentrated solution.

Cell wall - prevents plant cells bursting so they become turgid.

Questions:

1. What is the definition for osmosis?
2. What will happen to a animal cell like a red blood cell if it was put in pure water?
3. What will happen to a plant cell if it is put into a solution more concentrated that itself?
4. Why don't the solute molecules move through the partially permeable membrane?

Lesson 11 and 12: RP Osmosis



$$\text{CHANGE IN MASS (\%)} = \frac{\text{MASS AT END} - \text{MASS AT START}}{\text{MASS AT START}} \times 100$$

Control variables:

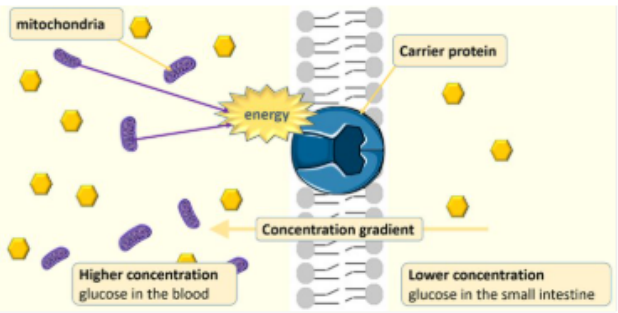
- The **time** potatoes are in solution
- **Remove** the **skin** from the potato
- The **type** of potato/the **same** potato
- The **surface area** of the potato
- The **temperature** of the solution used
- The **volume** of the solution used

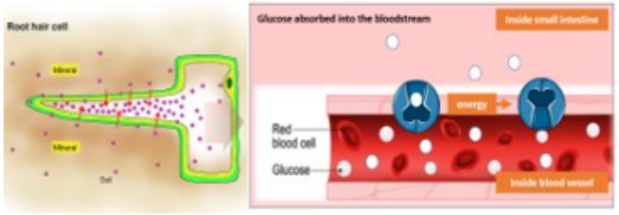
Questions:

1. Why does a potato chip in 0.0mol/dm³ increase in mass?
2. Why does a potato chip in 1.0mol/dm³ decrease in mass?
3. Read from the graph above, what is the concentration of potato tissue?
4. Why must the potato chips be blotted before they are put on the scales?

Lesson 13: Active Transport

Active Transport- moves substances from a lower concentration to a higher concentration (against a concentration gradient)..





Questions:

1. What is the definition of active transport?
2. Name the sub-cellular structures that carry out respiration.
3. Why are mitochondria needed for respiration?
4. Why does active transport need energy?
5. Give **two** places where active transport happens and say what the substances are that move this way.

Lesson 1- Elements, Compounds and Mixtures

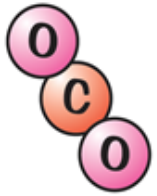
Element

Only 1 type of atom, that can be found on the periodic table

Example: N_2 (Nitrogen)

Compound

More than 1 type of element, chemically bonded together.

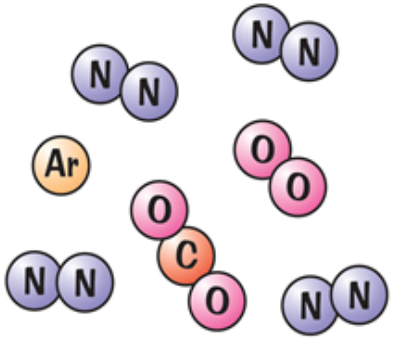


Example CO_2 (Carbon dioxide)
The chemical formula shows the proportion of atoms of each element in a compound. e.g. 1 Carbon bonds with 2 Oxygens

Mixture

Combination of elements and/or compounds not chemically bonded together.
(Can be separated)

Example (Air)



Lesson 2- Balancing equations

Word equations:

Reactants (substances we started the reaction with), always go on the **left**.
Products (substances formed during a reaction), always go to the **right** of the arrow.

Reactants → Products

methane + oxygen → carbon dioxide + water

Symbol equations:

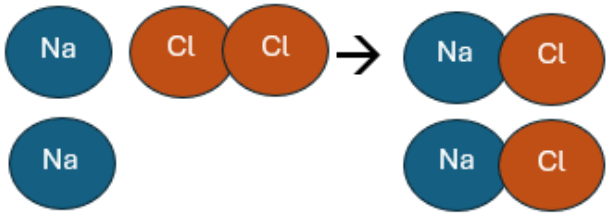
There must be the **same number of each atom** on each side so the equation is balanced.
The **large numbers in front** of the formulas tell you how many units of that element or compound there are.

Unbalanced equation:

__ Na + __ Cl_2 → __ NaCl

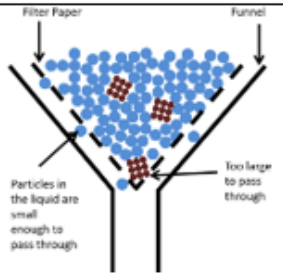
Balanced equation:

2 Na + Cl_2 → 2 NaCl

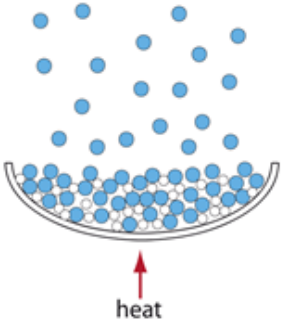


Lesson 3- Filtration and Crystallisation

Filtration — separates insoluble (cannot dissolve) solids from liquids and solutions.
It can be used to separate out a solid product, or purify a liquid by removing insoluble impurities.
E.g. sand and water



Evaporation — separates soluble (can dissolve) salts from solution.
e.g. salt water.



Crystallisation- also separates soluble salts from solution. This is slower than evaporation, so makes larger crystals, or is used for substances that thermally decompose (break down with heat). E.g. copper sulfate

Heat solution, but cool it when crystals start to form.

↓

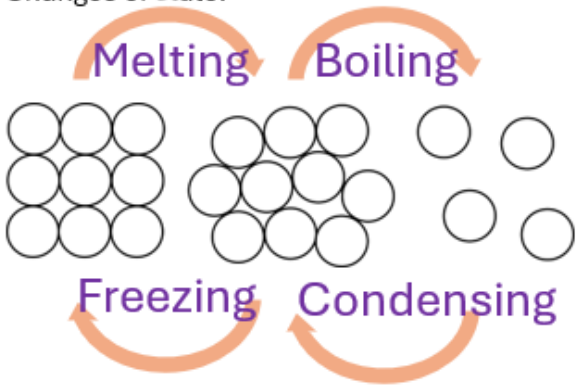
Large crystals form as solution cools.

↓

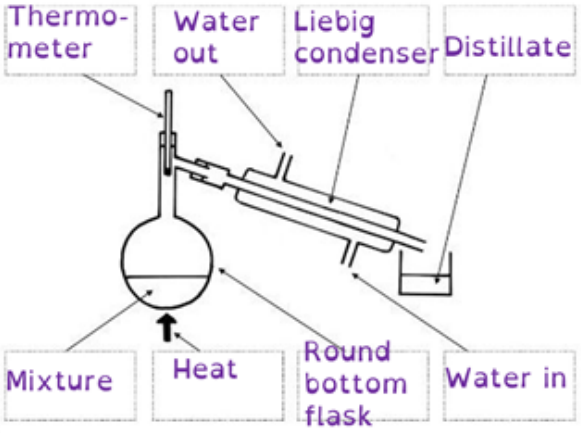
Filter out crystals and leave to dry.

Lesson 4- Distillation

Changes of state:



Distillation:
Separates mixtures with **different boiling points.**
Substances are heated to their boiling point, then condensed to be collected. Substances with a higher boiling point remain in the first flask.



Lesson 5- Development of the atom

John Dalton:
Atoms could not be broken down.
Atoms of the same type make up an element
Tiny spheres

JJ Thompson:
Could be broken down.
Discovered the electron
Plum pudding model
Electrons randomly spread
Ball of positive charge

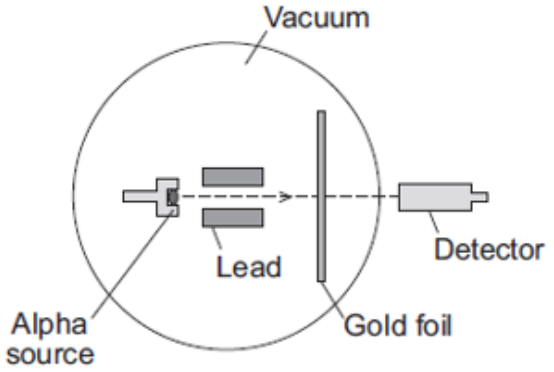
Ernest Rutherford:
Alpha particle gold foil experiment
Small positive nucleus
Atom is mostly empty space

Niels Bohr
Electrons are found in shells

James Chadwick
Discovered the neutron

Lesson 6- Rutherford's Experiment

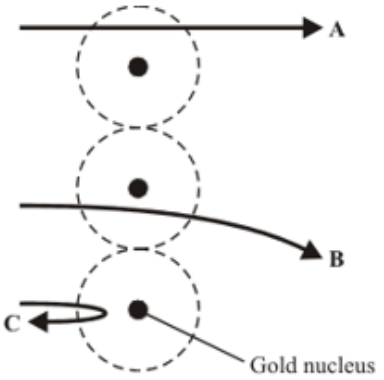
Rutherford fired alpha particles (positively charged) at a sheet of gold foil.



He found that:
- A- Most particles went through undeflected
- B- Some particles were deflected a little
- C- A small percentage were deflected backwards

This gave evidence that:
Most of the atom is empty space

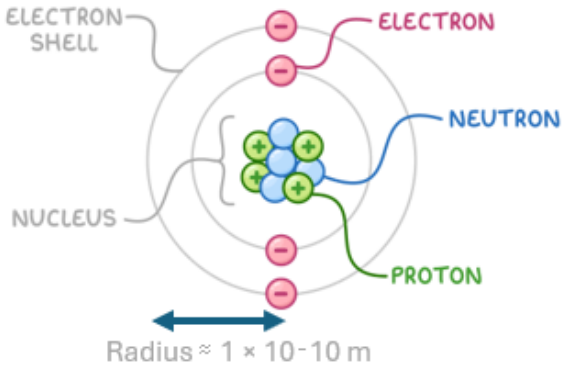
There is a small, positively charged nucleus.



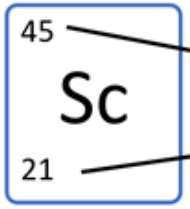
Lesson 7- Size and mass of atoms

Subatomic particle	Charge	Mass
Proton	Positive (+)	1
Electron	Negative (-)	1/1840 (almost 0)
Neutron	Neutral 0	1

- Atoms have an average **radius** of about **0.1nm ≈ 1 × 10⁻10 m**
- 1 nano meter is 1x 10^{-9} m = 0.000000001m
- The **nucleus** of an atom is **10,000 times smaller** than the atom.
- If an atom was the size of Wembley Stadium, then the nucleus would be the size of a garden pea.



Lesson 8- Ions and isotopes



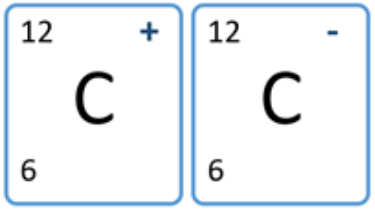
Atomic Mass
total number of subatomic particles in nucleus = 45
Atomic Number
total number of protons in nucleus = 21

21 Protons **Atomic Number**
21 Electrons **Atomic Number**
45-21 = 24 Neutrons
Atomic Mass- Atomic Number

Ions are charged atoms.

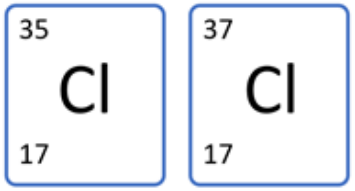
Positive ions have less electrons.

Negative ions have extra electrons.



6 protons 6 protons
5 electrons 7 electrons
6 neutrons 6 neutrons

Isotopes have the same number of protons, but a different number of neutrons.



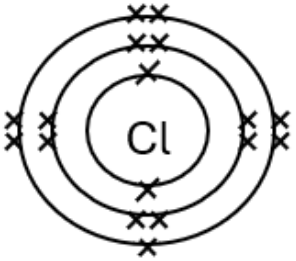
17 protons 17 protons
17 electrons 17 electrons
18 neutrons 20 neutrons

Lesson 9- Electronic Structures

In an atom, there are a maximum number of electrons found in each shell.

Shell	Number of electrons
Frist	**2**
Second	**8**
Third	**8**

Example:
Chlorine has 17 electrons
Also written as: (2, 8, 7)



Group number	Period number
Number of electrons in outer most shell	The number of shells

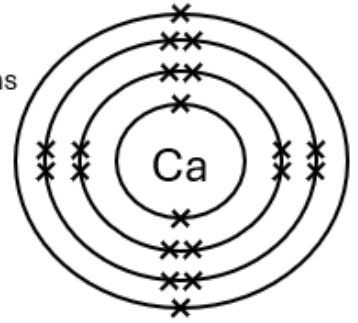
Example:

Calcium 20 electrons

(2, 8, 8, 2)

Group 2
(2 in outer shell)

Period 4
(4 shells)

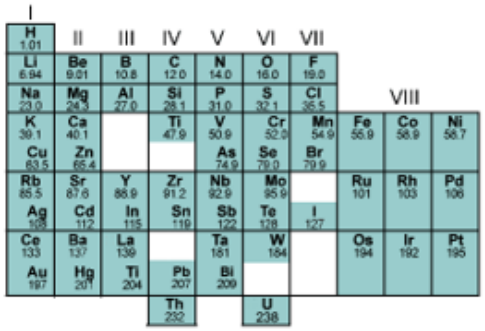


Lesson 10- Development of the periodic table

Johann Dobereiner 1780-1849
Suggested his **"Law of Triads"** in 1817 – involved placing elements in **groups of 3 based on appearance and reactivity.**

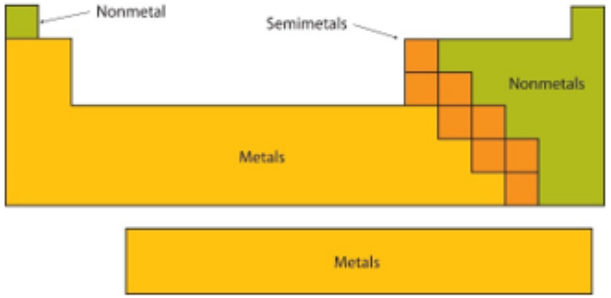
John Newlands 1837-1898
Placed the elements in order of **relative atomic mass**.
He is famous for his **"Law of Octaves"** which suggested that elements were similar to elements that were 8 places further on.

Dmitri Mendeleev 1834-1907
He did not agree with John Newlands version of the Periodic table
He prioritised **grouping elements by their properties**, over the order of mass.
He left gaps because he believed there were **elements yet to be discovered** that would fit in these gaps
He **predicted the properties of elements** yet to be discovered



Lesson 11- Metals and non-metals

Metals are found on the **left** of the periodic table.
Non-metals are found on the **right** of the periodic table.



Metals are *typically*:

- Good conductors of heat and electricity.
- Shiny when polished
- Dense (heavy for its size)
- Hard (difficult to scratch)
- Solids (high melting point and boiling points)
- Malleable (hammered into shape)
- Ductile (can be drawn into wires)

Most elemental metals are **not magnetic**, only Iron, Cobalt and Nickel.

Lesson 12- Group 1 observations

Group 1 is the first column of the periodic table

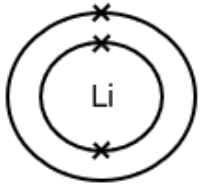
Metal	Physical properties (Hardness, density, appearance)	Chemical properties (Reactivity in water)
Lithium (Li)	Soft, low density (floats on water), shiny silver	Fizzes (H_2 gas produced)
Sodium (Na)	Softer, low density (floats on water), shiny silver	Fizzes faster (H_2 gas produced), steam produced (Hot), more vigorous
Potassium (K)	Softest, low density (floats on water), shiny silver	Fizzes fastest (H_2 gas), purple flame.

As you go down group one, they become softer, and **more reactive.**

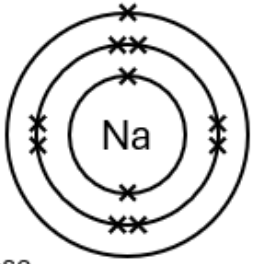
Francium would be the most reactive element in group 1.

They have very **similar properties**, which is why Mendeleev put them in the same group in the periodic table.

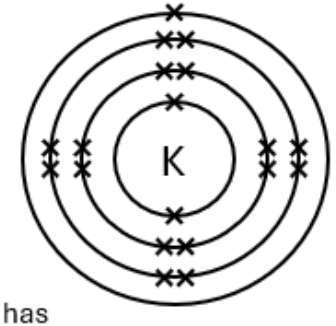
Lesson 13- Explaining Group 1 Observations



As you go **down group 1,** the **atomic radius increases.** This is because it has **more electron shells**.



As the atom gets larger, the reactivity **increases.** This is because as the atom gets bigger, the outer shell electron is **further** from the nucleus. This means that the outer shell electron is **easier** to lose because it is less **attracted** to the nucleus.



If the atoms are larger, they are softer, because it is easier to slide a knife between the atoms, it has weaker metallic bonds.

As you go down group 1, the **density increases.** This is because there are more protons and neutrons (atomic mass increases). *This increases more than the volume.*

Review questions Lessons 1-6

1/ Which 4 of the following are elements:
N_2, CO_2, Mg, H_2O, Air, Li, CO, Co, KOH, Fire

2/ How many atoms of hydrogen and oxygen are found in water (H_2O)?

3/ When hydrogen and oxygen react, they form water. Write this is a word equation.

4/ Balance the symbol equation:
$\_\_H_2 + \_\_O_2 \rightarrow \_\_H_2O$

5/ What method of separation would you use to separate a mixture of sand and water?

6/ What method of separation would you use to separate a mixture of a soluble salt and water?

7/ What are the two changes of state that happen during distillation?

8/ What property separates the mixture during distillation?

9/ What are the 'plum' parts of the plum pudding model?

10/ What was the name of the scientist that theorised the nuclear model of the atom?

11/ What did Rutherford fire at a thin sheet of gold?

12/ Why did most pass straight through the atom?

Review questions Lessons 7-13

13/ How many times bigger is the atom, compared to the nucleus?

14/ What is the radius of an atom in nanometres?

15/ What two subatomic particles make up the atomic mass of an element?

16/ How can you calculate the number of neutrons in an atom of an element?

17/ What is the maximum number of electrons in the second shell of an atom?

18/ Give the electronic configuration of Lithium.

19/ Why did Mendeleev leave gaps in his periodic table?

20/ How did John Newlands order the elements?

21/ Where are the non-metals found on the periodic table?

22/ Are metals good or bad conductors of electricity?

23/ State one similarity of how the group 1 metals react in water.

24/ State the trend in reactivity as you go down group-1.

25/ What happens to the radius of an element as you go down the group?

26/ Why is it easier for group 1 to lose electrons as you go down the group?

Lesson 1 - Energy Stores and Transfers

When a system changes, energy is transferred between stores.

The energy stores are:

Energy store	Example
Kinetic	A moving object
Gravitational potential	An object that is high up
Thermal	A hot object
Elastic potential	A stretched object
Chemical	A battery
Nuclear	The nucleus of an atom
Magnetic	The magnetic field around a magnet
Electrostatic	The electric field around a charged particle

Energy can be transferred between these stores in four ways:

- Mechanically (by forces)
- Electrically
- By Heating
- By Radiation

Energy is transferred from an elastic potential store to kinetic and gravitational potential stores when these spring toys are released.

Lesson 2 - Conservation of Energy

Describing Energy Changes:
Energy changes are described in terms of stores increasing and decreasing.

When a gymnast lands on the mat, the elastic potential store of the mat increases and the gravitational potential store of the gymnast decreases.

A system is the object, or group of objects, that we are considering.

Open and Closed Systems:
A system can be either:

- Open – no energy is transferred in or out of the system
- Closed – some energy is transferred in or out of the system

Any system that has **external** forces acting on it will be an **open** system.

The pendulum in this clock is an open system since air resistance acts on it as it swings through the air.

The Law of Conservation of Energy:
Energy cannot be created or destroyed, only transferred between stores.
This means the **total** energy of a closed system is constant.

Lesson 3 - Work done

Energy is the capacity to do work. By work we mean applying a **force** over a **distance**.

We say that when energy is transferred, **work is done**.

$$work\ done = force \times distance \qquad W = Fd$$

The standard units for these are:
Work done – Joules (J)
Force – Newtons (N)
Distance – metres (m)

Sometimes values could be given to us in:
Force – kilonewtons (kN)
Work done – kilojoules (kJ)
Distance – kilometres (km)

"Kilo" just means "a thousand". For example:
$1\ kN = 1000\ N \quad 1\ kJ = 1000\ J \quad 1\ km = 1000\ m$

Values should be converted to standard units before calculating using the equation.

Lesson 4 - Power

Power is defined as the amount of energy **transferred each second or** the amount of **work done each second.**

$$power = \frac{energy\ transferred}{time} \quad \text{or} \quad P = \frac{E}{t}$$

$$power = \frac{work\ done}{time} \quad \text{or} \quad P = \frac{W}{t}$$

The standard units for these are:
Power – Watts (W)
Time – seconds (s)
Energy or work done – Joules (J)

Time values could also be given to us in:

- Seconds
- Minutes
- Hours

Seconds are the standard unit of time in physics.

$1\ minute = 60\ s \qquad 1\ hour = 60\ minutes$

Why can a car with a high power engine accelerate quickly?

Because the engine can transfer more energy from the chemical store of the fuel to the kinetic store of the car each second.

Lesson 5 - Gravitational Potential Energy

Gravitational field strength is a measurement of the "strength" of gravity in a particular location. It is measured in **Newtons per kilogram** (N/kg).

Gravitational potential energy (GPE) can be calculated using:

$$GPE = mass \times gravitational\ field\ strength \times height$$

or

$$E_p = mgh$$

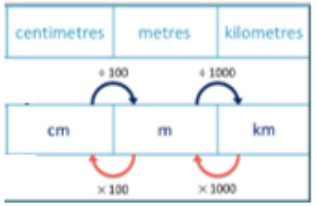
The standard units for these are:
GPE – Joules (J)
Mass – kilograms (kg)
Height – metres (m)

Height values could also be given to us in:

- kilometres (km)
- centimetres (cm)

"kilo" just means "a thousand"
"centi" just means "a hundredth"

$1\ km = 1000\ m \qquad 1\ cm = 0.01m$



Lesson 6 - Kinetic Energy

The kinetic energy (KE) of an object is the energy stored due to the motion of the object.

Doubling the speed increases the kinetic energy by a factor of 4.

Kinetic energy is proportional to speed squared.

Speed (m/s)	Kinetic energy (J)
0	0
5	125
10	500
15	1125
20	2000
25	3125
30	4500

x2 x4

$$KE = 0.5 \times mass \times speed^2 \quad \text{or} \quad E_k = \frac{1}{2}mv^2$$

The standard units for these are:
KE – Joules (J)
Mass – kilograms (kg)
Speed – metres per second (m/s)

Mass values could also be given to us in:

- grams (g)

"kilo" just means "a thousand"

$1\ kg = 1000\ g \qquad 1\ g = \frac{1}{1000}kg$

Why is a collision with a lorry much worse than a car at the same speed?

Because the mass of the lorry is much larger, so it has a much larger kinetic energy when travelling at the same speed as a car.

Lesson 7 - Energy Transfer Calculations

When an object falls or rolls down a hill, energy is transferred from its gravitational store to its kinetic store.

The maximum speed it can reach at the bottom can be calculated using this method:

1. Calculate the GPE at the top of the ramp.
2. Since energy is transferred from gravitational potential to kinetic, this will be equal to the KE at the bottom of the ramp.
3. Calculate the speed using the KE equation.

Look at the example below and have a go at the "Your Turn" question.

My turn	Your turn
A ball of mass 0.6kg is dropped from a height of 4.5m.	A ball of mass 0.2kg is dropped from a height of 10m.
Calculate the initial GPE of the ball. $GPE = m \times g \times h$ $GPE = 0.6 \times 9.8 \times 4.5 = 26.46\,J$	Calculate the initial GPE of the ball.
Calculate the maximum speed that the ball can hit the ground at. $KE = 0.5 \times m \times v^2$ $26.46 = 0.5 \times 0.6 \times v^2$ $\frac{26.46}{0.5 \times 0.6} = v^2$ $v = \sqrt{\frac{26.46}{0.5 \times 0.6}} = 9.4\,m/s$	Calculate the maximum speed that the ball can hit the ground at.

$$KE = 0.5 \times mass \times speed^2$$

$$GPE = mass \times gravitational\ field\ strength \times height$$

The correct answer is 14m/s.

Lesson 8 - Dissipation of Energy

Open and Closed Systems:
A system can be either:

- Open – no energy is transferred in or out of the system
- Closed – some energy is transferred in or out of the system

Any system that has **external** forces acting on it will be an **open** system.

Dissipation:
In open systems, energy is often **dissipated**.

This means it is transferred to the **thermal store** of the **surroundings**.

This energy is sometimes referred to as **wasted** energy.

Example:
When a skydiver falls to earth, their gravitational store decreases but kinetic store does not increase by the same amount.

This is because air resistance has transferred some energy to the thermal store of the surroundings.

Lesson 9 - Efficiency

Efficiency is the **fraction** of the energy supplied to a system that is transferred **usefully**.

It can be calculated from either energy, or power values.

It can be expressed as a decimal, or as a percentage (by multiplying the decimal by 100).

$$efficiency = \frac{useful\ energy\ output}{total\ energy\ input}$$

$$efficiency = \frac{useful\ power\ output}{total\ power\ input}$$

Incandescent **Energy Saving** **LED**

LED light bulbs have a higher efficiency than other types of light bulb.

This means several things:

- LED light bulbs dissipate or waste less energy
- LED light bulbs transfer the largest fraction of their input energy usefully.

Lesson 10 - Improving Efficiency

Energy that is not transferred usefully is dissipated (transferred to the thermal store of the surroundings).

Either by thermal energy escaping, or resistive forces like friction or air resistance.

How can friction be reduced?
Moving parts should be lubricated using oil or grease.

This reduces friction allowing the parts to move more freely.

How can air resistance be reduced?
By reducing the cross-sectional area, which reduces the air resistance.

Doing the above makes things more efficient as less energy will be dissipated.

Thermal conductivity:
Thermal energy can be transferred through a material by conduction.

Thermal conductivity is the rate at which a material transfers energy by conduction.

Energy dissipation by heating can be reduced by insulating an object using a material with a low thermal conductivity.

Lesson 11 - Energy Resources

All energy resources are either:

Renewable
Is replenished as it is used and so will not run out.

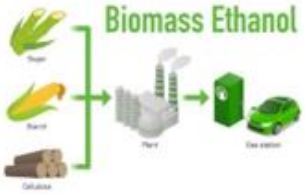
Non-renewable
Cannot be replenished as it is used and so will run out.

Energy resource	Renewable or non-renewable?
Fossil fuels	Non-renewable
Nuclear	Non-renewable
Solar	Renewable
Wind	Renewable
Hydroelectric	Renewable
Tidal	Renewable
Biomass	Renewable
Geothermal	Renewable

Reliable energy resources are ones where we can accurately predict the output of at any time.

In hydroelectric energy, a **dam** is built to trap river water and let the water flow through **turbines** in the bottom of the dam.

In biomass energy, material from living (or recently deceased) organisms is burned.



Examples include:
- Wood
- Charcoal
- Biofuels (e.g. biodiesel)

Lesson 12 - Comparing Energy Resources

Energy resources are used for:
- Generating electricity
- Transport
- Heating

Burning fossil fuels has several environmental issues:

- Produces greenhouse gases (such as CO2), causing climate change.

- Produces sulfur dioxide, causing acid rain.

- Produces particulates, causing harm to living organisms.

Nuclear power stations produce is **radioactive waste** which is highly dangerous.

It must be stored **securely** for a very long time until it becomes less dangerous.

All energy resources have factors that affect decisions over when or how they are used. These factors can be: economic, social, environmental or political.

Lesson 13 - Energy Resources Over Time

Energy and power values could be given to us in:

- Energy – Megajoules (MJ)
- Power – Megawatts (MW)

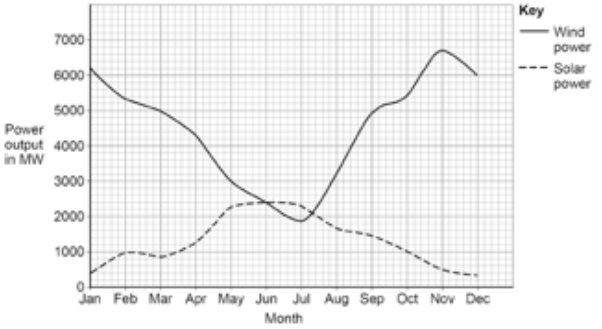
"Mega" just means "a million".

$1\ MJ = 1\,000\,000\ J$ $1\ MW = 1\,000\,000\ W$

This wind turbine has a maximum power output of 3MW.

Our demand for energy changes over time. This is often shown on graphs.

What information can you get from the graph below?



- Wind power output was highest in winter, lowest in summer.
- Solar power output was highest in summer, lowest in winter.
- Maximum power output of wind was 6700MW.
- Minimum power output of wind was 1900MW.
- Maximum power output of solar was 2400MW.
- Minimum power output of solar was 400MW.

Review questions Lessons 1-6

1. List the energy stores and the different ways energy can be transferred.
2. What is the difference between an "open system" and a "closed system"?
3. State the Law of Conservation of Energy.
4. Describe how energy stores are changed when wood is burned in a log burner to warm a room
5. State the units for work done and power.
6. Define power.
7. Covert 1.25kJ into Joules.
8. Calculate the power of a heater that transfers 2400 J of energy in 1 minute.
9. Write down the equation for kinetic energy.
10. Write down the equation for gravitational potential energy.
11. Convert 50g into kilograms (kg).
12. Calculate the kinetic energy of a lorry that has a mass of 2500kg and is travelling at 20m/s.
13. Calculate the gravitational energy gained when a 60kg person walks up stairs 3m high.

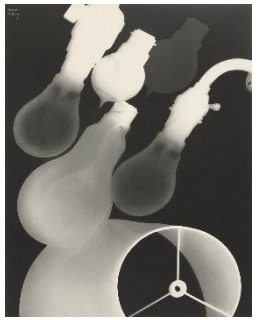
Review questions Lessons 7-13

1. Name two ways energy can be dissipated.
2. Explain how to reduce energy dissipation.
3. Do materials that are good conductors have a high or low value of thermal conductivity?
4. Explain what is meant by 'efficiency'.
5. Calculate the efficiency of a device that has a total power input of 600W and a useful power output of 120W.
6. Explain the difference between renewable and non-renewable energy resources.
7. Explain where the energy comes from in hydroelectric power.
8. Explain what is meant by a 'biomass'.
9. Explain why biomass energy is "carbon neutral".
10. Explain where the energy extracted by geothermal power comes from.
11. Give two disadvantages of nuclear power.
12. State some environmental issues caused by burning fossil fuels.
13. Convert 4.5MW into Watts (W).

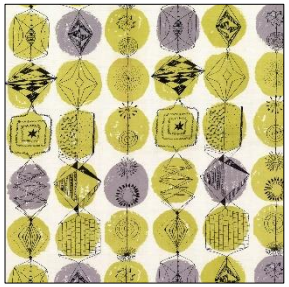
Yr9 C.1 – Creativity & Careers

Creatives produce original work on their own and in collaboration. Art inspires design & vice versa**.**

'Bauhaus' was a school of design & architecture in Germany (1919 to 1933)



Man Ray-Photography 'The Électricité portfolio' 1927



Lucienne Day - 1952 Textile design

Hattie Stewart Illustration 'Vogue' 2019

Helmo Graphic Design Duo 'Fashion Animal Series' 2012

Mara Hoffman Melon Sleeve Dress Spring 2023 Collection

The Creative Industry

The term 'creative industries' describes **businesses with creativity at their heart** – for example design, music, publishing, architecture, film and video, crafts, visual arts, fashion, TV and radio, advertising, computer games and the performing arts. The creative industries have a wide impact on our economy, wellbeing, society and education.

Artists & Careers – Key Information:

1. **The Bauhaus – Architecture & Design**. Bauhaus art dominated Europe in the 1920s and 1930s. The name is derived by inverting the German word *Hausbau*, "building of a house." The Bauhaus school helped to train artists to become architects and designers of the future.
2. **Man Ray & Photography :** In the 1920's the American artist Man Ray began experimenting with a photography technique called the photogram process. The Électricité portfolio is one of the best examples of the graphic and commercial use of Man Ray's photography. Commissioned by a French energy company, it shows the range of modern innovations that depended on electricity.
3. **Lucienne Day & Textile Designs :** Lucienne Day (1917 - 2010) is a Modern British textile designer. She played an essential role bringing design to Britain after the War. The concept of "art for the people" was realised as a result of Lucienne's dedication to creating exciting abstract patterns for mass-manufacture. Her designs were inspired by combining geometric forms with simplified imagery of flowers, plants and patterns from nature.
4. **Hattie Stewart & Illustration**: Hattie Stewart is an artist and illustrator currently based in London. She has used her vibrant, unique and playful illustration style to produce work for clients such as Ariana Grande, Kylie Minogue, Addidas, Nike and Mac cosmetics.
5. **Helmo & Graphic Design** Thomas Couderc and Clement Vauchez, better known as 'Helmo', are a Design Duo from France who create posters magazine covers & fashion photography , using digital editing techniques .
6. **Mara Hoffman:** This contemporary fashion designer has dug her heels in on the subject of sustainability .The aim is to design and manufacture garments with greater care, to reduce the impact on the planet, and generate awareness. She uses a large proportion of sustainable materials such as organic cotton, linen, hemp, and recycled materials such as recycled polyester and regenerated nylon.

Techniques & Processes –Key terms:

- **Camera-less Photography :** Creating a photo without the use of a camera.
- **Chemigram:** A Chemigram is a camera-less photography process used to create an image on light sensitive paper. This experimental technique involves putting objects onto the paper, exposing it to light, then immersing the paper in chemical developer and fix. In real terms: take photographic paper, put stuff on it, see what happens.

- **Collaboration:** Collaboration or collaborative art can be defined simply as artwork that involves working as a team to create art, and each person contributes in some significant way to the artwork.

- **Digital editing:** Photo or image editing refers to modifying or improving photographic images using different techniques, to enhance or manipulate an image. 'Photoshop' is an editing software commonly used by creatives.

- **Etching :** Dry point etching is an intaglio technique. Intaglio refers to any printmaking process which involves making incisions or indents in a plate, so when the ink is applied and then wiped off, ink remains caught in the incisions and creates the image.

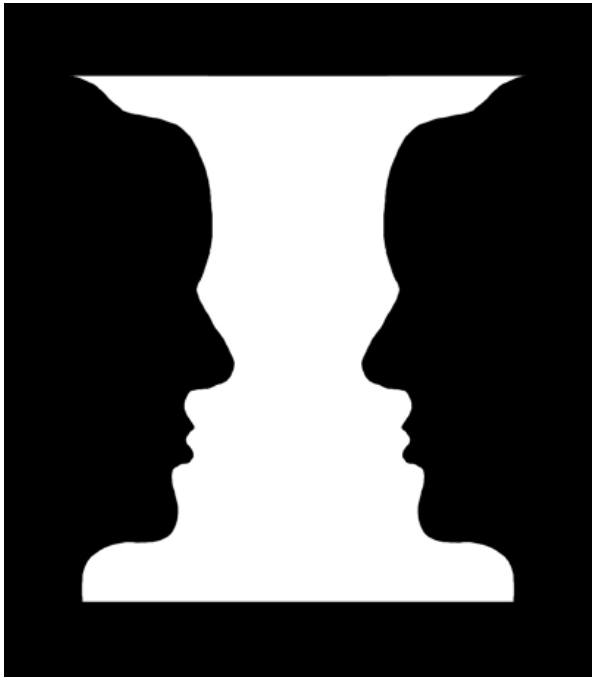
- **Inspire**: To give someone ideas to do or create something. Inspiration is a feeling of enthusiasm you get from someone or something, which gives you new and creative ideas.

- **Mood board:** A mood board is a type of visual presentation or 'collage' consisting of images, text, and samples of objects in a composition. It can be based on a set topic or can be any material chosen at random. A mood board can be used to convey a general idea or feeling about a particular topic.

- **Positive and Negative Space** : Positive space is best described as the areas in a work of art that are the subjects, or areas of interest. Negative space is the empty space around and between the subject(s) .

  Example: Take a look at the image - do you see faces or a vase? If you are seeing a vase, then you are seeing the white area as the positive space and the black area as the negative space. If you see faces, then you are seeing the black areas as the positive space, and the white area as the negative space. →

- **Sustainability:** Sustainable art or design is making work that is not harmful to the environment & that address topics such as climate change, waste and social issues.



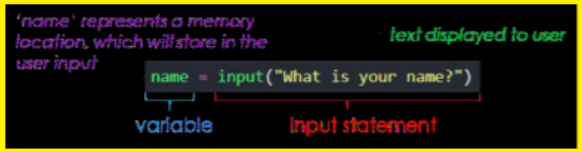
Computer Science

Year 9 - Python ProgrammingKnowledge Organiser

Computing

Inputs & Variables

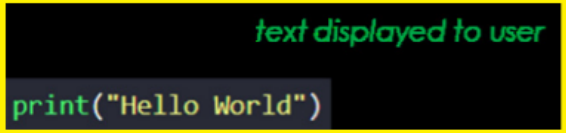
When we code, we often need our programs to receive and store inputs from the user. In python, this is achieved using the input() script, assigned to a variable.
The input() script is set up like this:



When it is executed (run), the text inside the brackets will display on the screen and the program will pause for a 'user input'.
Once the user has entered an input, it will be stored in the variable assigned to the input statement (e.g. name).

Outputs

When we wish to output information (strings/numbers) onto the screen, we use the print() statement.
The print() script is set up like this:



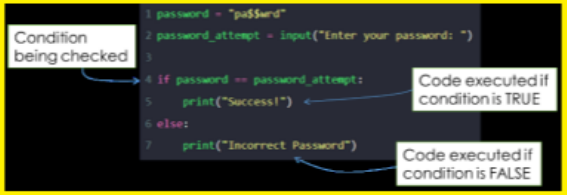
- When it is executed (run), the text inside the brackets will display on the screen.
- Unlike the input()script, there will be no pause and the program will immediately execute the next line of code in the program.
- If the print statement contains text with quotes, it will display the text inside the quotes.
- However, we can also display the contents of variables using a print() statement.
- To do this, we add the variable's label between the brackets, without the quotes.

```
1 text = "Hello World"
2 print(text)
```

Hello World

Selection & The IF-ELSE statement

Selection is a programming construct which allows programs to take different pathways (execute different lines of code), depending on a condition. In other words, it allows programs to make decisions. This is achieved using IF statements, which in python are set up like this:



In the program above, the contents of the two variables (password and password_attempt) are being compared.
- If they match, the program will run the code under the if statement.
- If they do not match, the program will run the code under the else statement.

Data Types & Maths

In python, when an input statement is executed, the input is always stored by the system as a string data type. Which is fine when we enter words and sentences. However, if we are requesting that the user enters whole numbers that will then be calculated upon in our program, we must inform the system that the entered data is in fact an integer, otherwise the program will not carry out the calculations correctly.

```
not_a_number = input("Enter a number)
now_a_number = int(not_a_number)
```

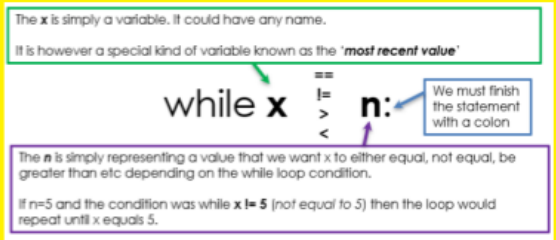
We cast data to an integer type using the int() function.
When the number is entered, it is first stored as a string. We use the int() function to cast the inputted value into an integer data type.

Key Vocabulary

Input - Values which get sent from the user into the computer
Variable - The place where inputs get stored by the program
Output - The values which get sent from the computer to the user
Decision - Deciding what to do depending on certain conditions. IF
Statement - A programming construct which enables a program to take different pathways depending on particular conditions.
Data Type - The type of data being used by the program
Variable -The place where inputs get stored by the program
Integer - "Whole Number" data type
Iteration - Another name for a 'loop'

Iterations & The WHILE loop

Iterations & The WHILE loop
Iterations are a programming construct which enables the repeated execution of lines of code.
The WHILE loop is a type of iteration which is condition controlled. This means that its ability to loop will depend on a condition. For example, if the condition was x=1, the loop will only run if the variable x is equal to 1, but if it is instead equal to anything else, the loop will not run.
In python, WHILE loops are set up like this:



Study the following code:

```
1 letter = "s"
2 while letter != "s":
3     letter = input("Enter a letter: ")
4 print("Loop has ended")
```

This code, will continue to ask the user to input a letter, until they enter the letter 's'.
The moment they do enter the letter 's'. the loop will stop and the next line of code in the program will execute – in this example, the print statement will run, outputting 'Loop has ended'.

Multi-Rolling

This is where one actor plays more than one character in a play or performance

Opportunities	Threats
It can make the performance more comical	It can make it harder for the audience to follow
Actors can show off a range of vocal and physical characterisation skills	It puts pressure on the actor to use a range of vocal and physical skills
You need less actors for the performance	There are more lines and parts for the actors to learn
You can use costume to create differences between the characters	You can't have the characters on stage at the same time

Synopsis

The Stones is a dramatisation of a true story where two boys faced manslaughter charges after kicking rocks off a motorway bridge and killing a motorist.

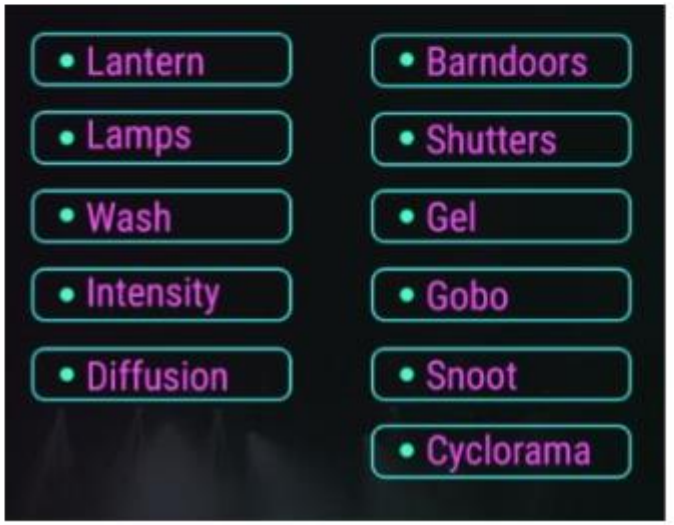
Tom Lycos & Stefo Nantsou developed the script with the assistance of Police officers and detectives who were in charge of the case.

The play fictionalises the characters and weaves in other true stories from similar incidents from around the world.

Year 9 – Cycle 1
The Stones

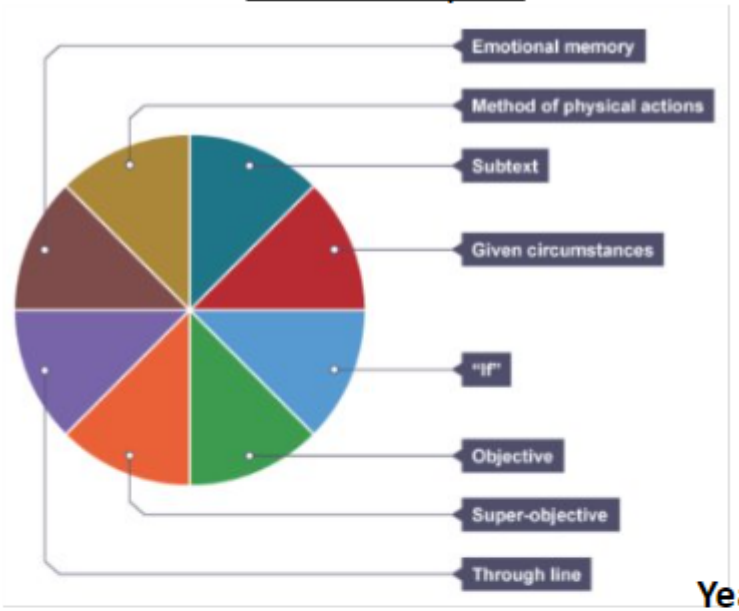
Characters

Lighting Design Terminology



Year 9 – Cycle 1
Naturalism vs Non-Naturalism

Stanislavski's System



Basic Terminology

Naturalism	Non Naturalism
Naturalistic acting is when the actors are trying to create a performance that accurately depicts real life. The reactions, behaviours and emotions of the characters are realistic and are not exaggerated for dramatic purposes The outcome is a piece of theatre that the audience can connect with and characters that they can empathise towards.	Non naturalistic acting is any form or style of performance that opposes Naturalism. Often these styles stray from reality and communicate through physicality, visual storytelling, song, or exaggeration. An example of this is Musical Theatre or Physical Theatre, which rely on telling the narrative through songs and movement rather than realistic exchanges between characters.

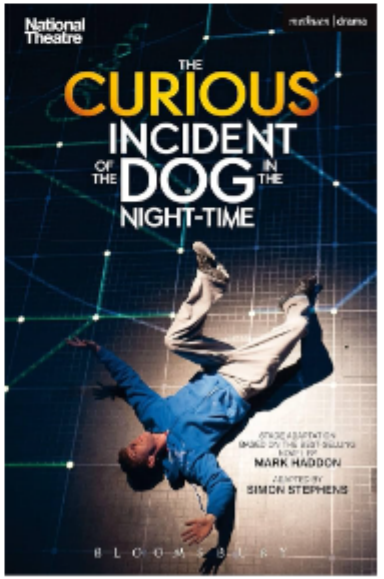
Set Design

Drapery	**Drapery is any set that can be used to frame the stage and often hangs down from bars.**
Levels	A set designer can vary levels through the use of *rostra*, ramps and steps. Ordinary blocks, staging units, scaffolding and planks can be used to create levels and can be joined together to create steps or other shapes. Levels are often used in productions to portray a character's status, power or situation.
Projection	Projections are becoming more common within set design and can be used to add detail and texture on stage. In some venues scenery can be projected, which can be very effective but can have limitations.
Flats	A flat is a piece of scenery used to represent a wall or to conceal a backstage area. A series of flats can be joined together to make a run, where each flat is supported by a brace with a heavy weight attached.

Curious Incident

Frantic Assembly Performance Techniques

- Chair Duets
- Hymn Hands
- Push Hands
- Round-By-Through
- Devising from Music
- Lift Work
- Action and Reaction



Lesson 1 Classifying Countries	Lesson 2 Measuring Development	Lesson 3 What is HDI?	Lesson 4 Introducing Africa
Development is a positive process of change that affects people's lives. We classify countries into 3 groups: **HIC:** High Income Countries e.g. UK, Japan, France, USA **NEE :** Newly Emerging Economies e.g. India and China **LIC:** Low Income Countries e.g. Kenya, Haiti, Democratic Republic of Congo **Newly Emerging Economies :** A country that is rapidly developing, usually based on manufacturing. The first group were called the **Asian Tigers:** Taiwan, South Korea, Singapore and Hong Kong. The **BRICS:** These include Brazil, Russia, India, China South Africa  The newest group are called the **MINTs:** This group includes Mexico, Indonesia, Nigeria and Turkey.	**Social Indicators** **Adult Illiteracy:** the percentage of adults that cannot read and write **Life expectancy:** The average age people are expected to live. **Food Intake per capita** (calories): the average amount of calories that a person eats. **Birth Rate:** the number of births per 1000 per year **Death Rate:** the number of deaths per 1000 per year **Economic Indicators** **Gross National Income** (US$)- the total earnings of the country. **Gross National Income per capita** (US$) – the total earning of the the country divided by its population. **Energy consumption per capita** (tonnes of oil) – the amount of energy consumed per person. **Exports** (US$) – the value of all the goods sold to other countries.	Using **only one** development indicator can be misleading.... **UKs GNI is** $3.327 trillion China GNI Is $27.06 trillion ... but... UKs GNI per capita is $49,420 China GNI per capita is $19,160 **GNI per capita** will tell you how much money a **person gets on average**, this makes it more accurate. However, this does not mean that everyone receives this money The money can be concentrated into the hands of few **Human Development Index:** a summary measure of health (life expectancy), education(school years) and standard of living (GNI per capita). Scored 0-1. However, it does not take into account equality and environmental issues.	There are 5 regions to Africa: North, West, East, Central and Southern. Africa has different climate zones, so it has different biomes which stretch in broad, **latitudinal belts** east to west. **Hot Desert:** eg. Sahara **Savanna:** grasslands. **Tropical Rainforest:** eg. Congo. **Semi-Desert:** such as the Kalahari The Great Rift Valley is tectonically active 
1. What is development? 2. What does NEE stand for? 3. Which countries were in the first generation of NEE 4. What was this group called 5. Name the BRICS 6. Name the MINTS	1. What does GNI stand for? 2. What does per capita mean? 3. What is life expectancy? 4. What is the definition of birth rate? 5. What is the definition of death rate?	1. What does HDI stand for? 2. What three factors does it measure? 3. Why is GNI misleading as a measure of development? 4. Why is GNI per capita also a little misleading? 5. What does HDI not measure?	1. Which sea separates Africa from Europe? 2. Which sea separates Africa from the Middle East? 3. Which countries are in north Africa? MALE? 4. Name a rainforest 5. Name a tectonic feature in Africa

Lesson 5 Kibera: Why did it grow?	Lesson 6 What is poverty like?	Lesson 7 Causes of Development Gap	Lesson 8 Trading Game
Location Located on the outskirts of Nairobi, Kenya (east Africa) is an informal settlement. **Growth** Rapid growth and uncontrolled urbanisation as a result of rural to urban migration (people moving to the city from rural areas). **Pull Factors** The positive aspects of the city: jobs, school, and health care. **Push Factors** The negative aspects of the countryside: crop failure, land seizure, lack of jobs. **Slum**: is an informal settlement. The government do not have to supply water, electricity, sewerage or refuse collection 	Densely populated: 1million people live in 1 mile². There are high levels of crime, gang violence, drugs and alcohol abuse and rape. Buildings are made of mud, wood, scrap sheet metal. 1/5 children will die before their first birthday (infant mortality) Emptying toilets is the second highest paid job.  Open sewers, no running water, limited electricity, people have to pay for kerosene for lighting. 1 toilet per 1000 people. Average wage is 60p per day. 15% of people live with HIV. Very few free school places. Parents have to pay £3 per week for school.	**Environmental Reasons:** In **landlocked countries** don't have a coast so trade is limited. Some countries have **rich soil** and a climate that helps farming and **natural resources** (e.g. tea, coffee) but these are low value **Socio-Economic Reasons:** LIC's have bright, young people. But many don't get a secondary **education**, if at all. **Diseases** such as Malaria and TB are common in LIC's. If you are unwell you can't work. People in LIC's may spend a lot of their time looking for **food, water and firewood**. They won't have time for work. **Historical Reasons:** Several European countries (including Britain) developed early due to the **Industrial Revolution** in 1750. Europeans took over countries as **colonies** as they explored Africa. Little was done to develop the colonies.	Teams are given different resources (paper, stationary, money). These represent the **natural materials** used to make **Manufactured products (paper shapes)**, the **machinery** and the tools needed for manufacturing. Not all countries were given the same, this shows that **not all countries have the same resources** and hence some countries are HICs, some LICs and some NEEs. Some events are announced by the United Nations that help or hinder the game- such as **tropical storms, civil war** and **financial crisis.** The price of shapes increased due to a **surplus** of them, or decreased due to a demand for them. Trading allowed all countries to access the resources. Some of the resources are worth more money. **Trade is not always fair** and can be made fairer across the world.
1. In which country and continent is Kibera located? 2. What is the key term for people moving to urban areas 3. List 3 pull factors 4. List 3 push factors 5. Why do the government not provide services to places like this?	1. How many people live in 1 square mile? 2. How many people share 1 toilet? 3. How much do parents pay per week for schools? 4. What is the average daily wage? 5. What % have HIV?	1. What type of factor is poor soil? 2. Is disease a social or economic factor? 3. When did the Industrial Revolution begin in Britain? 4. How did the UK and other countries treat Africa?	1. What does the paper represent? 2. What does the stationary represent? 3. What did the paper shapes represent? 4. What did the LICs have a lot of? 5. What did the HICs have a lot of?

Lesson 10 Trading and development	Lesson 11 Fair Trade	Lesson 12 What is Globalisation?	Lesson 13 Causes of Globalisation
Debt: Many African countries received loans during the 1970s, they have had to pay these back slowly but now can't even pay back the interest, so they have to borrow more **Terms of Trade:** Poorer countries often **export raw materials** such as **cash crops** such as tea, sugar, coffee and fruit. These are **unprocessed** and sell for a low price. These prices vary **(fluctuate)** which means that people can't guarantee a stable price. HICs **manufacture or process** these products such as cocoa into Chocolate or roast the coffee beans, this **adds value** and means they make more money. 1 kilo of unprocessed coffee can be worth as little as $0.39. This can make 80 cups of coffee that are sold for $3-4 each. **Trade deficit**: This is when LICs import higher values goods and export lower value goods meaning they make little profit	**Trade** is the exchange of goods and services between countries. **Exports**-goods sold to another country. **Imports** –good brought in from another country. **Fair Trade:** This involves companies ensuring a **fair and guaranteed** price for growers. Most major companies now do this and pass the extra cost to the consumer. However, there are loop holes and even though Starbucks say they are fair trade when not all the products are. Fair trade means better prices, **decent working conditions**, local **sustainability, respect for the environment** and fair terms of trade for farmers and workers in the developing world. This allows farming communities to invest their profits in schools, medical centres, wells.	Globalisation is the lengthening and deepening of links between countries. They are becoming more **inter-dependent.** **Flows of people**: People travel the world for work and for leisure.  **Flows of money**: Money can easily be transferred across the world due to internet/online banking.  **Flows of Information**: Information is now easily shared due to emails and the internet.  **Flows of goods**: Goods are now easily shipped and flown around the world.  When countries are connected, they become **interdependent.** There are both positive and negative impacts of Globalisation such as increased choice, cheap products, worker exploitation, environmental damage.	.Some places are more **'Switched on'.** Some places are less connected **'Switched off'.** **Containerisation:** has reduced transport costs by 80%. It is cheaper and easier to move products. They can carry 18000 containers. **Jet air** craft such as the **Boeing 747** moves 500-800 people in one flight. **Low cost, budget airlines** Easy Jet allow frequent travel over short distances. **Internet, smart phones and social media** allows large amounts of data (ideas, information, trends, money) to be quickly moved and shared. **Governments** make trade deals with other countries. **UN** (193 countries including 5 members of the security council: UK, USA, France Russia, China) encourages peace, sustainable economic and developmental growth **WB (World Bank)** give loans to poorer countries
1. What do LICs mainly export? 2. What is the name for coffee, tea, sugar, etc? 3. What happens to the price of these products? 4. What types of products to HIC export? 5. How could we describe the "terms of trade" Unf_____	1. What happens to the price of cash crops? 2. Fairtrade and the Rainforest Alliance g_____ a f____ and s_____ price 3. What can the profits be used for? 4. What are the other benefits of Fairtrade? 5. Would you consider Fairtrade to be a success	1. What are the 4 flows of globalisation? 2. What term describes when countries become connected? 3. State one example of a positive Impact of globalisation. 4. State a negative effect of globalisation	1. What has accelerated the movement of goods? 2. What has accelerated the movement of ideas/ information/ money? 3. What does WB stand for and what do they do? 4. What is the UN? Which 5 countries are on the permanent security council?

Geography

Lesson 14: Superpowers and IGOs

IGOs: Inter governmental organisation. These are organisations that lots of countries join or are part of. They meet and try and make decisions about peace, development and the environment.

G8 is the 8 richest economies

UN is a peacekeeping, development and environmental IGO. The USA, UK, France, China, Russia are the most influential.

NATO is military IGO between USA and Western Europe

WB is a economic IGO that gives loans to LICs. The USA is most significant contributor.

Superpowers have a significant influence over the world. The **USA** is the world's main SP. The **BRICS** are Emerging or Regional Powers

The EU is a powerful collective of countries

1. What does UN stand for?
2. Which countries have the most influence in the UN?
3. What does NATO stand for?
4. Which country is the main superpower?
5. Which countries do we consider emerging powers?

Lesson 15 Fashion Victims

Transnational Corporations (TNCs)
The HQ is located in HIC.
The **factories/ manufacturing** are found in LIC.
TNCs are **controversial** – they bring jobs but can cause problems for workers and the environment.

Rana Plaza: Is a textiles manufacturing factory. It makes clothes for Primark, ASDA, Wrangler. In 2013, due to lax environmental laws, building codes and workers conditions, it collapsed killing 1,134 workers.

Positive Multiplier Effect
However, they also create jobs, income, people pay tax, government improves infrastructure. This can help the country out of poverty.

1. What does TNC stand for?
2. Where are the HQ usually located?
3. Why do they locate manufacturing in LIC/NEE?
4. State one positive to the LIC/NEE
5. State one social and one environmental negative to the LIC/ NEE

Lesson 16 E Waste

E-waste is electronic products that are unwanted, not working, and nearing or at the end of their "useful life."

Agbogbloshie is a former wetland in Accra, Ghana. This is home to the World's largest e-waste dumping site.

Boys and young men burn the plastic casing off copper wires. SO it can be sold and recycled.

Injuries, such as burn, untreated wounds, eye damage, lung and back problems, chronic nausea, anorexia, debilitating headaches and respiratory problems. Most workers die from cancer in their 20's.

Consumerism causes this problem but there are questions over who is responsible for reducing the problem

1. Where is Agbogbloshie?
2. What term describes an unwanted electronic product?
3. Give one example.
4. Name an injury from sorting through e-waste
5. What is the keyterm used to describe buying and discarding items

Keywords

Write down the definition of these key words

Birth rate
Cash crop
Containerisation
Death rate
Development
Emerging power
Export
G8
Globalisation
GNI
GNI per capita
HDI
Informal settlement
Life expectancy
Manufactured goods
Multiplier Effect
NATO
Raw material
Rural to urban migration
Trade
Sustainability
Superpower
UN
World Bank

Year 9 History Knowledge organiser - Cycle 1b – the rise of dictatorships. Treaty of Versailles, Communist Russia

A. Overview: This period was marked by struggles in much of the world, as Europe struggled to recover from the devastation of the First World War. Returning soldiers from the First World War felt let down by the governments resulting in revolutions. Many countries in Europe embraced radical ideas such as fascism and communism resulting in governments led by dictators.

The Russian Empire had a population of 181 million people in 1916. Many countries gained independence as a result of the Russian Revolution

B. The Treaty of Versailles, Russian Revolution

The Treaty of Versailles	A peace treaty signed by the allies in June 1919. Germany was forced to sign. This treaty did not bring about long-term peace, instead creating future problems
War-guilt clause	Under the terms of the Treaty of Versailles, Germany had to accept that they were responsible for the First World War
Diktat	The name given by Germany to the Treaty of Versailles. A dictated peace (not negotiated)
Reparations	Germany was forced to pay for damages for the First World War to Belgium and France. They had to borrow money from American banks to help them pay.
Communism	A political theory developed by Karl Marx and Friedrich Engels (also known as Marxism) which predicted that a workers' revolution was inevitable and that capitalism would be replaced by a fair and equal society with a strong government
Capitalism	Economic system reliant on individual enterprise and business, trade and profits being made to re-invest. Capitalism in 19th century Britain and Russia saw many inequalities and much poverty
Revolution	Usually a violent overthrow of government. Russian revolution - 1917
The Bolsheviks	Communist party in Russia who led the October revolution. Led by Lenin. Trotsky was the military planner.
Civil War	After the October seizure of power there was civil war in Russia. The Bolsheviks won.

C. Key terms

Democracy	A form of government in which the people have the authority to choose their governing legislation
Dictator	A ruler with total power over a country, typically one who has obtained control by force
Treaty	A formally concluded and ratified agreement between countries
Tsar	King/emperor of the Russian Empire. Tsar (also spelt Czar) was forced to abdicate early in 1917
Police state	A country in which the government controls people's freedom by means of the police, especially secret police.
Terror	If you do not obey or protest then you could be arrested, even killed. Dictators use this as a method of control
Propaganda	To indoctrinate people into believing that the dictator/government was leading the country well. To follow without question. A method of control

D. Key people, flags, map

Vladimir Lenin Communist political leader who led the Bolsheviks to power in Russia 1917

Josef Stalin Soviet politician who ruled the Soviet Union from the mid-1920s until his death in 1953. Was a Communist

Flag of the Union of Soviet Socialist Republics; 1922 to 1991

E. Stalin's Russia

State-controlled industry	All the main industries were run by the government. Each industry was set targets that it had to reach in five years
Collective farming	Peasants were forced to hand over their land, animals and tools to a collective farm and work co-operatively. They had to give a lot of produce to the state
Purges	Stalin 'purged' all the people in the Communist party who might challenge his leadership. They were arrested and put on trial in public. They were sentenced and executed
Leadership cult	There were statues and paintings of Stalin everywhere. Propaganda, films and posters were designed to convince people that Stalin was the best person to guide them to a wonderful future

Year 9 History - Knowledge organiser - Cycle 1b – Interwar years – the rise of dictatorships. Fascist Italy and Nazi Germany.

F. Timeline of key events

11/11 1918	Armistice signed ending the fighting of World War One
28th June 1919	The Treaty of Versailles is signed, officially bringing World War One to an end
1919	A new political party is formed in Italy called the Fascist Party
January 1920	The new League of Nations meet for the first time
October 1922	Benito Mussolini starts his rule in Italy with the 'March on Rome'. initially as Prime Minister before later setting himself up as a legal dictator
January 1923	France and Belgium occupy the industrial region of the Ruhr in Germany over reparations
1923	Germany suffers from hyperinflation, causing huge social and economic problems
June 1929	Young Plan eases reparations burden but hated by many Germans
October 1929	Wall Street Crash – the American economy, including banks collapse. Leads to economic and political crisis in Germany
January 1933	Hitler becomes Chancellor of Germany. Over the next 18 months he establishes himself as dictator of Germany
1935-1939	Hitler begins to repeal terms of the Treaty of Versailles and gain territory whilst Britain and France follow a policy of appeasement in hopes of avoiding a new war
1939-1945	The Second World War begins when Germany invade Poland. During the Second World War the Holocaust happened. The allies won and Nazi Germany was defeated. Mussolini's fascist Italy was also toppled. Stalin remained in place. Soviet Russia emerged as a super-power, start of Cold War

G. More key terms

Fascism Fascists	Political theory that sees a strong government (usually a dictatorship) and strong national identity which can lead to racism. Wants to gain greater equality for workers so appealed to the working class too. Mussolini's Italy and Hitler's Nazi Party were Fascists
League of Nations	International organisation created as a result of the Paris Peace Conference after the First World War to discuss and act on any conflicts, work on improving health and act on poverty. Significant weakness was that Germany was not allowed to join, Russia was expelled, USA not a member
Hyper-inflation	Inflation (price rise) of money at a very high rate. Money becomes almost worthless under hyperinflation. People's savings and pensions become worthless
The Depression	Economic recession caused by the Wall Street Crash, affected the world in 1930's, particularly the USA and Germany.
Blackshirts	Ex-soldiers from the First World War in Italy. Mussolini gave these soldiers a black uniform. They formed a paramilitary group who enforced fascist policies and helped Mussolini to power. They were angry about the First World War and poverty and unemployment in Italy
Totalitarian	Means that the state has control over every aspect of a person's life. A dictator is one person who makes all the decisions of government. Stalin, Mussolini and Hitler were totalitarian dictators
SS and SA	Paramilitaries in Nazi Germany. The SS carried out the atrocities of the Holocaust
Gestapo	Nazi secret state police who would arrest people
Anti-Semitism	Dislike or hatred of Jewish people. Fascist Italy and Nazi Germany had strong anti-Semitic policies
Fuhrer	Term used to describe the role of Hitler in Nazi Germany. Directly translated as 'pilot' or 'guide'
Cult of personality	Like Stalin, Mussolini and Hitler used propaganda to make their leadership seem infallible (could do no wrong)
The church (Christian)	As a powerful and moral institution, the church could have challenged these dictators. All dictators worked differently with the church. Stalin closed the churches and banned religion. Mussolini and Hitler worked with the church

H. Key people and flags

Benito Mussolini
Italian politician and journalist who founded and led the National Fascist Party. Ruled Italy as a dictator from 1922 to 1943

Adolf Hitler
German politician and leader of the Nazi Party and leader of Germany, 1933 to 1945

Josef Goebbels
German Nazi politician and Reich Minister of Propaganda of Nazi Germany from 1933 to 1945.

Flag of fascist Italy

Flag of Nazi Germany

Mussolini and Hitler

Knowledge organiser - Cycle 1 – The Campaign for Universal Suffrage

Key events

Date	Event
1819	The Peterloo Massacre – 18 killed, 600 wounded in reform protest in which **Henry Hunt** was the speaker.
1832	The Great Reform Act. People in industrial towns like Manchester get MPs. 1 in 5 men allowed to vote.
1867	Second Reform Act – allowed *some* working class men the right to vote. Approx 2.5 million now allowed to vote.
1872	Secret Ballot Act – people now vote in private.
1897	**NUWSS** formed. **Millicent Fawcett** is leader.
1903	**WSPU** is formed by **Emmeline Pankhurst** and daughters.
1905	**Militant** campaign begins – Christabel Pankhurst and Annie Kenney arrested
1909	**Hunger strike** and **force feeding** starts – Marian Wallace Dunlop becomes the first hunger striker.
18th Nov 1910	Black Friday – A protest march in London is met with violence by police. 150 women are physically and sexually assaulted.
1913	**'Cat and Mouse Act'** is passed - **hunger striker**s were temporarily released then rearrested to prevent them dying in police custody
1913	**Emily Wilding Davison** attempts to pin a **Suffragette** scarf onto the King's Horse at the Derby. She is struck by the horse and dies four days later.
1914	World War 1 starts – **Suffragette** leaders urge women to join the war effort. **NUWSS** continues to campaign for recognition for their work.
1918	The **Representation of the People Act** is passed, allowing men over 21 and women over 30 to vote.
1928	Second **Representation of the People Act** is passed. Gives equal voting rights to men and women. All adults over age of 21 allowed to vote.

Key terms

Key Word	Definition
arson	Deliberately setting fire to property to try to cause extensive damage.
Cat and Mouse Act 1913	Permitted suffragettes on **hunger strike** to be released but re-arrested once well again to complete their sentences.
franchise	The right to vote.
force feeding	Imprisoned suffragettes on **hunger strike** were sometimes force fed. A rubber tube was inserted into the throat or nose and liquidised food being poured in.
hunger strike	Refusing to eat as a form of protest. Usually done in prison.
martyr	Someone who dies or suffers for their cause.
militant	To hold extreme views. Use aggressive or violent behaviour to achieve your aims.
NUWSS	The National Union of Women's **Suffrage** Societies (NUWSS) - formed in 1897 and brought together many smaller organisations. Believed in peaceful protest.
petition	A formal written request or application, especially one signed by many people, to a particular individual or group, for example, a government.
Reform	To change something for the better
Representation of the People Act 1918	A law which granted the vote to women over 30 who were also householders, the wives of householders, owners of property worth over £5 or university graduates. The Act also granted the **franchise** to all men over the age of 21.
suffrage	The right to vote in political elections.
suffragette	A campaigner for women's **suffrage** willing to use violence or break the law.
suffragist	A campaigner for women's **suffrage** who believed in peaceful and legal methods of campaigning.
WSPU	Women's Social and Political Union a more **militant** group of women's rights protestors. Formed by **Emmeline Pankhurst.** 'Deeds not Words' was their slogan.

Key People

Radical (extreme) **reformer.** Was the main speaker at the Peter's Field protest that turned into the **Peterloo Massacre** in 1819.

Emmeline Pankhurst – WSPU

Led the WSPU from October 1903. Took more **militant** action such as windows smashing, **arson** and **hunger strikes**. Arrested numerous times, went on **hunger strike** and was force fed. Died in 1928.

Emily Wilding Davison – WSPU

Joined WSPU in 1906. 3 years later, left job as a teacher and became a **suffragette** full time. Frequently arrested for number of crimes inc. setting fire to post box. By 1911, become increasingly **militant**. 1913 killed at Epsom Derby by king's horse Anmer.

Millicent Fawcett - NUWSS

Leading **suffragist** and led **NUWSS** from 1897-1919. Played a key role in getting women the vote. Dedicated to using legal means and argued that **militancy** was counter-productive.

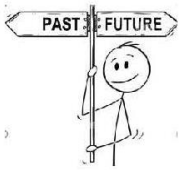
Y9Fr LC1 SB1 Tu admires qui ? Who do you admire?

Verb phrase	Verb	Noun	connective	adjective/noun	pronoun	verb phrase
J'admire…. (I admire…) Singers: Stromaë Angèle Actors: Thimothée Chalamet Omar Sy Melanie Laurent Pom Klementieff Influencers: Squeezie Michou Sports: Mbappé Zidane Louisa Nécib Eugénie Le Sommer Writers: Jules Verne Fred Vargas Simone de Beauvoir Françoise Sagan	il/elle est (He/she is)	chanteur chanteuse (singer) acteur actrice (actor) influenceur influenceuse (influencer) sportif sportive (sportsman/woman) auteur autrice (author) Suivre	et selon moi il/elle est (and according to me he/she is)	extraordinaire (extraordinary) célèbre (famous) populaire (popular) une star (a star) riche (rich) unique (unique) spécial spéciale (special)	car il/elle (because he/she)	a une voix puissante (has a strong voice) chante des chansons populaires (sings popular songs) est à la mode (is trendy) a beaucoup d'argent (has lots of money) a une série de télé-réalité (has a reality series) est fort(e) en... (good at…) fait des clips vidéos amusants/intéressants (makes funny/interesting videos) est mon héros/mon héroïne (is my hero/heroine) m'inspire (inspires me) est ma star préférée (is my favourite celebrity)
					donc je vais (so I'm going to)	chanter/écouter ses chansons (sing/listen to his/her songs) lire ses romans/son contenu (read his/her novels/content) le/la suivre (follow him/her) regarder ses films/son émission à la télé (watch his/her films/TV shows) soutenir son équipe (support his/her team) regarder ses matchs/compétitions (watch his/her matches/competitions)

Y9Fr LC1 – SB2 – Les descriptions – il/elle est comment ? What is he/she/like?

Verb	Verb	adjective	verb	adjective		
Je suis … (I follow) J'admire… (I admire) … m'inspire (…inspires me) J'écoute… (I listen to…) 	il/elle est (He/she is)	arabe (Arabic) britannique (British) canadien(ne) (Canadian) chinois(e) (Chinese) espagnol(e) (Spanish) français(e) (French) marocain(ne) (Moroccan) bouddhiste (Buddhist) chrétien(ne) (Christian) juif/ve (Jewish) musulman(e) (Muslim) bi (bisexual) hétéro (heterosexual) gay (gay) non-binaire (non-binary) transgenre (transgender) célibataire (single) marié(e) (married) Pacsé(e) (in a civil partnership) grand(e) (tall) petit(e) (small) jeune (young) vieux/vieille (old)	et je crois qu' il/elle est (and I believe that he/she is)	agréable (pleasant) amusant(e) (funny) bavard(e) (chatty) beau/belle (beautiful) calme (quiet) drôle (funny) fier/fière (proud) fort(e) (strong) gentil(le) (kind) heureux/euse happy) intelligent(e) (intelligent) sérieux/euse (responsible) sensible (sensitive) timide (shy) vif/vive (lively)	il/elle parle (he/she talks about)	de la musique (music) de la culture (culture) de la littérature (literature) de la mode (fashion) de l'art (art) du sport (sport) des films (films) de tout (about everything)

Y9Fr LC1 L'identité – SB3 – mes passions – my interests (contrasting tenses)

	noun	time marker	past tense phrase	connective time marker	future tense phrase	future tense	adjective
Ma passion est (My passion is)	la lecture. (reading) la cuisine. (cooking) la musique. (music) la mode. (fashion) la natation. (swimming) les jeux vidéos. (video games) le sport. (sport) le cinéma. (film) le shopping. (shopping)	Hier (Yesterday)	j'ai lu un livre (I read a book) j'ai fait un repas (I made a meal) j'ai écouté des chansons (I listened to songs) j'ai acheté des vêtements (bought some clothes) je suis allé(e) à la piscine (I went to the pool) j'ai joué sur ma console (I played on my console) j'ai joué au + sport (I played…) j'ai regardé un film (I watched a film) j'ai fait les magasins (I went to the shops)	mais demain (but tomorrow) 	je vais lire un livre (I'm going to read a book) je vais faire un repas (I'm going to make a meal) je vais écouter des chansons (I'm going to listen to songs) je vais acheter des vêtements (I'm going to buy clothes) je vais aller à la piscine (I'm going to the pool) je vais jouer sur ma console (I'm going to play on my console) je vais jouer au + sport (I'm going to play + sport) je vais regarder un film (I'm going to watch a film) je vais faire les magasins (I'm going to go to the shops)	ce sera (it will be)	passionnant (exciting) amusant/ drôle (funny) agréable (pleasant) bien (good) formidable (terrific) génial (great) nul (rubbish) barbant (boring)

Y9Fr LC1 SB4 Que fais-tu sur ton portable ? What do you do on your phone?

Future tense	noun		verb phrase	connective	adjective	opinion	adjective
Ce soir je vais utiliser (This evening I'm going to use) Demain je vais utiliser (Tomorrow I'm going to use) Je ne vais pas utiliser (I'm not going to use)	mon portable (my smartphone) mon ordinateur (my computer) ma tablette (my tablet) ma liseuse numérique (my e-reader) ma console de jeux (my games console) 	pour (for)	faire des achats (making purchases) surfer sur internet (surfing the internet) regarder des vidéos/la télé (watching videos/TV) suivre des influenceurs (following influencers) lire des e-mails/messages/SMS/livres (reading emails/messages/texts/books) prendre des photos/des selfies (taking photos/selfies) écrire des e-mails/messages/SMS (writing emails/messages/texts) jouer aux jeux (playing games) aller sur les réseaux sociaux (go on social media) les applis (apps) aller sur un site de streaming (streaming)	car c'est (because it's) car ce n'est pas (because it isn't) mais c'est (but it 's) mais ce n'est pas (but it isn't)	cher (expensive) dangereux (dangerous) inquiétant (worrying) moderne (modern) puissant (powerful) rapide (quick) intéressant (interesting) sûr (safe) facile (easy) gratuit (free) utile (useful)	je pense que c'est (I think it's)	bon pour la santé (good for the health) mauvais pour la santé (bad for the health) une perte de temps (a waste of time) essentiel (essential) amusant (fun) nul (rubbish)

Year 9 Learning Cycle 1 Sentence Builder 1:

¿Por qué es importante estudiar un idioma? = Why is it important to study a language?

Part 1

Está claro que = it's clear that	es importante estudiar los idiomas/las lenguas = it's important to study languages	porque = because	te permite = it lets you	abrir la mente = open the mind apreciar otros países = appreciate other countries aumentar tus posibilidades = increase your possibilities ayudar a tu cerebro = help your brain conocer a gente distinta = get to know different people conocer nuevos sitios = get to know new places encontrar un trabajo = find a job encontrar tu media naranja = meet your soulmate estudiar en el extranjero = study abroad descubrir otras culturas = discover other cultures hacer nuevos amigos = make new friends mejorar tu inglés = improve your English mejorar tus oportunidades = improve your opportunities trabajar en el extranjero = work abroad

Part 2

En el futuro = in the future 	quiero = I want to voy a = I am going to	hablar = to speak entender = to understand comprender = to understand	el español = Spanish el francés = French el alemán = German el italiano = Italian el chino = Chinese el catalán = Catalan el vasco = Basque el gallego = Gallcian

Year 9 Learning Cycle 1 Sentence Builder 2:

¿Qué es el Día de los Muertos? = What is Day of the Dead?

Interrogative	Verb		Verb	Noun		Verb	Adjective
Cuando = when	fui = I went fuimos = we went	al Día de los Muertos = to the Day of the Dead	me gustó = I liked	el ambiente = the atmosphere la ofrenda el desfile = the procession la comida típica = the local food la historia = the history la cultura = the culture	y = and	fue = it was	aburrido = boring alegre = cheerful animado = lively apropiado = aprropriate asqueroso = disgusting decepcionante = dissapointing diferente = different distinto = different divertido = fun emocionante = exciting estupendo = amazing excelente = excellent extraño = strange fascinante = fascinating genial = great gracioso = funny guay = cool hermoso = beautiful importante = important increíble = incredible interesante = interesting loco = crazy maravilloso = marvellous raro = weird peligroso = dangerous relajante = relaxing tolerante = tolerant único = unique útil = useful
			me gustaron = I liked	los colores vivos = the bright colours los disfraces = the fancy dress las flores = the flowers las decoraciones = the decorations			

Year 9 Learning Cycle 1 Sentence Builder 3:

¿Qué ocurre durante los festivales españoles? = What happens during Spanish festivals?

Time Phrase	Auxiliary Verb	Verb	Festival		
En el futuro = in the future	Me gustaría = I would like Voy a = I am going to	ir a = to go visitar = to visit participar en = to participate in ver = to see	los Sanfermines de Pamplona	se puede = you can para = (in order) to	correr con los toros = to run with the bulls ir a la plaza de toros = go to the bullring ver una corrida = to watch a bullfight
			las Fallas de Valencia		comer paella = to eat paella jugar con los fuegos = to play with fires ver los fuegos artificiales = to see fireworks
			La Tomatina de Buñol		beber vino = to drink wine pasarlo bien = to have a good time tirar tomates = to throw tomatoes
			El* Feria de Málaga		escuchar flamenco = to listen to flamenco ir a un concierto = to go to a concert tocar una guitarra = to play the guitar
			La Semana Santa en Sevilla		apreciar los pasos = appreciate the 'pasos' ir a la iglesia = to go to church ver los desfiles = see the processions

*a + el = al

Year 9 Learning Cycle 1 Sentence Builder 4:

¿Cómo se celebran días festivos en España? = How do they celebrate festival days in Spain?

Noun	Noun	Verb phrase	Verb	Connective	Verb	Adjective
El Día de Reyes = In Epiphany En Navidad = In Christmas En Nochebuena = In Christmas Eve En Nochevieja = In New Year's Eve En Semana Santa = In Easter En Diwali = In Diwali En Eid = In Eid En Jánuca = In Hanukkah En los cumpleaños = In the birthdays Para las bodas familiares = for family weddings	mi familia y yo = my family and I mis hermanos y yo = my siblings and I mis amigos y yo = my friends and I mis compañeros y yo = my colleagues and I	abrimos los regalos. = we open the presents. comemos doce uvas. = we eat 12 grapes. tenemos una gran fiesta. = we have a big party. vamos a la iglesia/ a la plaza/ a la mezquita/ a la sinagoga / al templo. = we go to the church/ town square/ mosque/ synagogue/ temple.	Nos encanta = We love (it) Nos gusta = We like (it) No nos gusta = We don't like (it) Nos encantan = We love (them) Nos gustan = We like (them) No nos gustan = We don't like (them)	porque = because	es = it is	aburrido = boring alegre = cheerful animado = lively apropiado = aprropriate asqueroso = disgusting decepcionante = dissapointing diferente = different distinto = different divertido = fun emocionante = exciting estupendo = amazing excelente = excellent extraño = strange fascinante = fascinating genial = great gracioso = funny guay = cool hermoso = beautiful importante = important increíble = incredible interesante = interesting loco = crazy maravilloso = marvellous raro = weird peligroso = dangerous relajante = relaxing tolerante = tolerant único = unique útil = useful

Composition & Music Technology

1. Key Vocabulary

Term	Definition
Composition	The process of creating and arranging music.
DAW (Digital Audio Workstation)	A software used to record, edit, and produce music.
Logic Pro	A professional DAW used for music production.
Apple Loops	Pre-recorded musical patterns that can be used to create compositions.
MIDI	A way of recording and editing musical notes digitally.
Tempo	The speed of a piece of music, measured in BPM (Beats Per Minute).
Pitch	How high or low a note sounds.
Dynamics	The volume of a sound (e.g., loud or soft).
Quantisation	Adjusting the timing of MIDI notes to fit a grid, making them more accurate.
Arrangement	How different sections of a composition are structured (e.g., intro, verse, chorus).

2. Understanding Logic Pro X

Basic Tools in Logic Pro

- **Track Header**: Where different instruments and sounds are organised.
- **Transport Bar**: Controls playback, recording, and tempo.
- **MIDI Editor**: Where notes can be placed and adjusted.
- **Apple Loops Browser**: Used to find pre-made sounds and beats.

3. Using Apple Loops

Steps to Add Apple Loops:

1. Open **Loop Browser** in Logic Pro.
2. Search for loops by **genre, instrument, or mood**.
3. Drag and drop loops into the **arrange window**.
4. Layer different loops to build a full composition.

Tip: Use loops creatively by adjusting their pitch, tempo, or cutting them to fit your composition.

KS3 Physical Education Head, Heart, Hands Assessment

	Head	Heart	Hands
Mastery	• I can **explain** a number of rules. I can **make links** between the strategies and tactics in different activities. • I am able to **apply** how key words on the knowledge organiser **relate** to different activities. • I am able to **analyse** performance to prioritise strengths and areas for development. I can communicate feedback and explain key coaching points.	• I am **hard working** and consistently give **100% effort.** I eagerly accept challenges and am a **role model** to others. • I am able to bring out the best in others to increase success when working as a team. • I demonstrate confidence and authority when officiating, leading and participating.	• I can **make links** between skills and techniques which will enable me to be successful across a range of sports and activities. • I can explain a problem to a team and communicate strategies to solve that problem. • Demonstrates **excellent fitness** across **all** activities.
Secure	• I can **explain** a number of rules. I can **apply** strategies and tactics in different activities. • I am able to **explain** all key words on the knowledge organiser • I am able to **analyse** performance and communicate strengths and areas for development.	• I am consistently on task and putting in my best effort • I am effective when working as a team and show respect to staff and equipment • I can demonstrate confidence to lead a group successfully	• I can apply appropriate skills and techniques to be successful within a competitive scenario • I can **identify a problem** and suggest solutions for pre-determined and spontaneous situations. • Demonstrates **very good fitness** across **a range** of activities.
Developing	• I can describe a limited number of rules, strategies and tactics • I am able to describe some key words on the knowledge organiser • I am able to **identify** strengths and areas for development and communicate **basic** feedback	• I am able to follow most instructions and am consistently on task • I am respectful when working as a team, to staff and equipment • I am developing my confidence and can demonstrate leadership qualities	• I am Developing the ability to apply skills and techniques within a competitive scenario • I can **identify a problem** and suggest solutions for pre-determined situations. • I can Demonstrate **good fitness** across **most** activities.
Emerging	• I can **identify** a limited number of rules, strategies and tactics. • I am able to **name** some key words on the knowledge organiser • I am able to **identify** strengths and areas for development.	• I am able to follow **simple instructions** and am developing the ability to stay on task • I am **developing** the ability to be respectful when working in a team • I am **developing** my confidence and understand the qualities that make a good leader	• The quality of **technique** is maintained for **few skills** and often deteriorates in challenging practises. • **Developing** problem solving skills but this may be ineffective for both pre-determined and spontaneous situations. • Fitness is a key area for development to become more effective within activities.
KS3 **Head | Heart | Hands** **Assessment**	**Head** **Knowledge | Understanding | Feedback Analysis | Rules | Strategies and Tactics**	**Heart** **Effort | Teamwork | Respect Leadership Resilience | Confidence**	**Hands** **Fitness | Physical Ability Technique Competition | Problem solving**

Year 9 Cycle 1 Sport and PE Knowledge Organiser

Week 1 and 2	Week 3 and 4	Week 5 and 6	Week 7 and 8	Week 9 and 10	Week 11 & 12
Injury Prevention	**Treatment - RICE**	**Environmental risk factors**	**Acute injuries**	**Chronic injuries**	**Symptoms of common conditions**
Sports coaches and athletes try to prevent injuries from happening. There are two factors in injury prevention, **Extrinsic** and **Intrinsic**. **Extrinsic Factors**: - Coaching & supervision – following rules and ensuring correct technique. - Equipment – Sport specific protective equipment. - Correct clothing & footwear - Environmental - weather, playing surface and other performers. **Intrinsic Factors:** - Physical preparation – warming up, being fit to play, balance of muscle strength. - Psychological factors – motivation, aggression level and anxiety level. - Individual factors – gender, age, sleep & nutrition	What do we need to know about treating injuries? - The TYPE of injury - The CAUSE of injury - The SYMPTON(S) of injury - The TREATMENT of injury **The assessment:** S - See A - Ask L - Look T - Touch A – Active movement P – Passive movement S – Strength testing **The Types:** - Heat - Massage - Bandaging - Splints & slings **RICE** – to treat *most* injuries; R - Rest I - Ice C - Compression E - Elevation	**The type of activity will often present different types and levels of risk** - The **weather** – rain, ice and snow can change the playing surface and fog can affect visibility. - The **playing surface** can affect the level of risk: Concrete, astro, ice, wooden floor etc. - **Other participants** – sometimes, an individual will have no control over the actions and decisions made by others around them. Good officiating can limit this kind of risk. - **Equipment** in the area of play – e.g. football posts or sponsor signage. 	Acute injuries are caused as a result of a sudden trauma to the body. Commonalities of acute injuries: - Immediate pain - Swelling - Loss of function - 'hard' tackle or impact with equipment. Examples: - Broken bone - Torn ligament - Instant concussion - Dislocation Acute injuries often include shock of some kind. 	These types of injuries occur and develop over a period of time. They are sometimes known as OVERUSE injuries. They are a result of continuous stress on one area of the body. If spotted and diagnosed early, they can be prevented. This will usually involve active rest or complete rest and sometimes a change in technique. Examples: - Tendonitis - Shin splints - Tennis elbow 	There are two main medical conditions: **Epilepsy:** Symptoms: - Seizures and or fits - Blurred vision - Tingling sensations - Sudden emotion - unresponsiveness Treatment: - Follow emergency care plan of individual - Keep calm - Offer reassurance - Keep airway clear **Asthma:** Symptoms: - Coughing & wheezing - Chest tightness - Pale and clammy skin Treatment: - Reassurance - Inhaler - Emergency services

My PE Targets

Cycle 1	Knowledge Organiser score:	Emerging	Developing	Secure	Mastery
My Target:					
Cycle 2	**Knowledge Organiser score:**	**Emerging**	**Developing**	**Secure**	**Mastery**
My Target:					
Cycle 3	**Knowledge Organiser score:**	**Emerging**	**Developing**	**Secure**	**Mastery**
My Target					

How to make a SMART target in PE

- Read the assessment band that you have been awarded
- Self-assess the most important area for you to develop out of Head, Heart and Hands
- Choose one bullet point from the band above that you are going to try and focus on in the next cycle

Examples of Targets

- This cycle I am going to try and work with different students in my group
- To demonstrate respect to others I am going to focus on listening when they are talking
- To show resilience even when practices get more challenging
- To improve my cardiovascular fitness by attending fitness suite club
- To improve my skill level by attending Badminton club

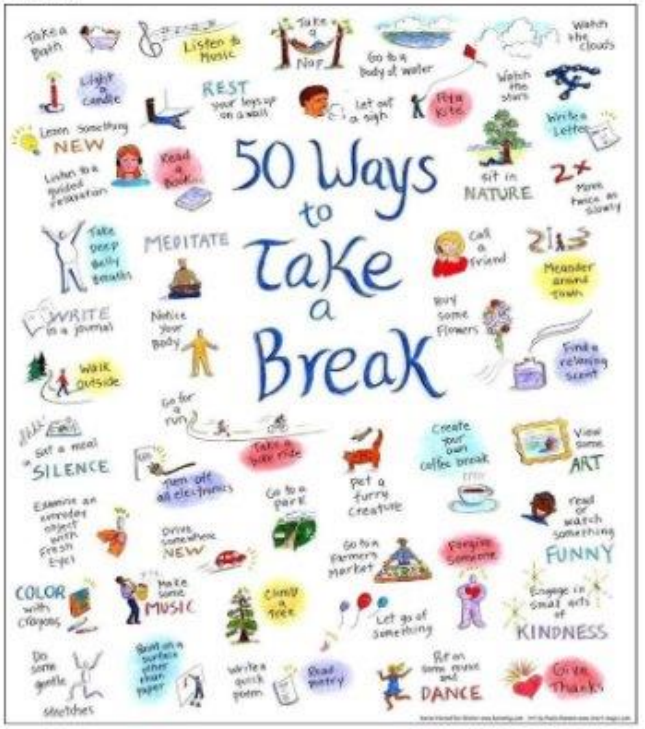
PSHE: How can I look after my well- being?

Key terms:

Mental health 	**This refers to how we feel, how well we're coping with daily life or what feels possible at the moment.**
Good mental health 	Having good **emotional** and **mental** health is when we are in control of our thoughts, feelings, and behaviour. We are able to cope with life's challenges, and we mostly feel good about ourselves and have good relationships with others.
Mental health 	Relating to the mind
Physical 	Relating to the body as opposed to the mind.
Emotions 	These are also called **feelings.** They can be affected by situations and our relationships with others
Healthy coping strategy	Good things we can do to help us to manage our most intense, thoughts and emotions.

Take a break: do something you enjoy

Try to plan some activities that you enjoy, and which will take your mind off things, whether that's texting or face-timing a friend, watching a film, reading a book or going for a walk.



PSHE: How we can we look after our well-being?

- Your tutor
- Your Raising Standards Lead – Mr Hart
- Your Inclusion lead – Mrs Parry
- Your PSHE teacher /PSHE team including Mrs Joyce
- Ms Ray (in charge of safeguarding)
- Any teacher

Peer led student support:
- Your 6th from Mental Health Ambassador
- Your 6th form student leaders – email Mrs Joyce

There are lots of places to get advice about emotional wellbeing, social media or to discuss feelings.

ChildLine:
www.childline.org.uk Phone: 0800 1111

Young Minds:
www.youngminds.org.uk

Samaritans:
www.samaritans.org Phone: 116 123

In a crisis, text 'Shout' t

shout 85258 here for you 24/7

5 minute mental wellbeing actions

These are simple, free actions you can do daily.
Many take very little time or energy, and most can be done in less than five minutes.

- **Breathe – take a few deep breaths**
- **Have a glass of water**
- **Have a healthy snack**
- **Do a 5 minute burst of exercise**
- **Connect with someone you care about – give them a hug, send them a message**
- **Take a moment to be still and present**

EH4MH EARLY HELP 4 MENTAL HEALTH

'10 a day' choices towards balancing our mental health

Page 1 Year RE: Holocaust Studies

Week 1

What was the Holocaust?

In order to effectively study the Holocaust, it is important to understand what the term means.

Trying to put this in a short definition is very difficult. One historically accurate and academically acceptable definition that the Holocaust Educational Trust uses is:

The Holocaust was the murder of approximately six million Jewish men, women and children by Nazi Germany and its collaborators during the Second World War.

The Nazis also persecuted people from other minority groups. These groups included Roma (sometimes referred to as 'Gypsies'), people with disabilities, political opponents, homosexuals, Black people, Jehovah's Witnesses and others.

It is essential to recognise what happened to each of the groups mentioned above. Each of these groups was persecuted for different reasons and in different ways. Some were treated in ways similar to Jewish people, but the reasons for such actions may not have been the same.

However, Jewish people "*were the only group that the Nazis sought to destroy entirely*". This is why we have the phrase 'The Holocaust' to describe what happened to Jewish people during the Second World War.

Week 5 Who is Kitty Hart- Moxon?

Kitty Hart-Moxon, OBE is a Polish-English Holocaust survivor. She was sent to the Auschwitz-Birkenau death camp in 1943 at age 16, where she survived for two years, and was also imprisoned. For many years Kitty has been speaking in schools, universities, colleges and to the general public, in the UK and abroad to educate others about the camps by sharing her experiences.

Week 2

Why do we learn about the Holocaust

In England, by law children are to be taught about the Holocaust. The aim is to educate all young people from every background about the Holocaust and the important lessons to be learned for today

When we learn about the Holocaust, it is really important that we humanise everyone involved.

This means, when we look at the different groups who were persecuted, we must explore who they were and why they were treated this way.

It is important to learn lessons from the past and take steps to challenge hatred, prejudice and discrimination and promote a society free from identity-based hostility and persecution.

Weeks 6 - 8

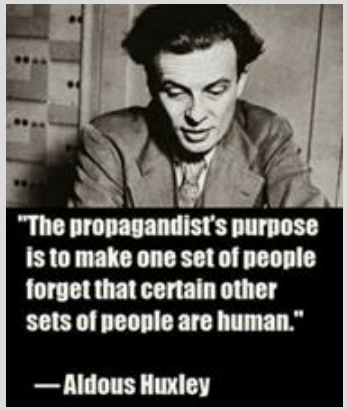
Who was Oscar Schindler?

Oskar Schindler was a German industrialist and a member of the Nazi Party who is credited with saving the lives of 1,200 Jews during the Holocaust by employing them in his enamelware and ammunitions factories in occupied Poland

Page 2 Year 9 RE: Holocaust Studies Key Terms weeks 1- 12

The Holocaust did not start with the gas chambers and the mass killings. It started with hate speech, prejudice and discrimination. It is important that we understand the definitions of these key terms so that we can explain how the Nazi regime used words and propaganda to disseminate (spread) hate; creating prejudice and intolerance against the Jewish people, which ultimately resulted in the deaths of six million Jewish men, women and children.

Propaganda
Propaganda is information or messages, that may be biased or misleading, used to promote a point of view and persuade people to think and behave in a certain way

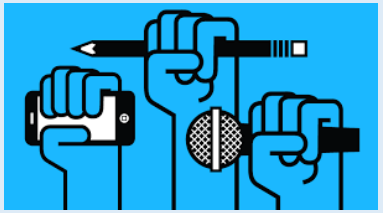


A Right is something that you are entitled to have or do (the right to a fair trial)

Human rights guarantee people the means necessary to satisfy their basic needs, such as food, housing, and education, so they can take full advantage of all opportunities.

By guaranteeing freedom, equality, and security, **human rights** protect people against prejudice, discrimination, persecution and oppression

A freedom is being able to think and say what you want and act how you want (freedom of expression)



Discrimination is when a person or group of people is treated unfairly compared to others. Most commonly, discrimination happens because of one's sex, religion, nationality, ethnicity, race, or another personal characteristic.

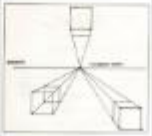
A personal characteristic is a quality (non- physical) or appearance (physical) that an individual has e.g. sexuality, race, religion

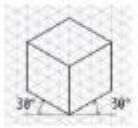
Prejudice means judging someone or having an idea about them before you actually know anything about them and is not based on reason or actual experience. Prejudice can lead to discrimination.

Persecution is hostility, ill-treatment towards an individual or group.

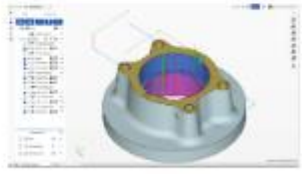
Dehumanisation is
The process of depriving
A person or group of
positive human qualities

Communication techniques.		Examples
What is an orthographic drawing?	Orthographic projection is used to show detail and measurements of the product clearly from a range of angles so that a stranger could use the drawing to work out the shape and dimensions for manufacture. A furniture designer would be a perfect example of someone who may use orthographic projection. To create an orthographic projection, you draw the front view, side view and plan view of your product in 2D. You can either draw them out by hand or generate the views using various CAD programs.	
What is an exploded view?	Are an effective way of demonstrating what is inside a product. These enable designers to think about the materials, the components and the way that the product is assembled. Exploded views show how the product would look if it were to be disassembled. You often find exploded views in the drawings that make up a patent.	
What is an assembly drawing?	These are used by designers to inform manufacturers and customers about how to assemble a product correctly. IKEA uses assembly drawings in their instructions for flat-pack furniture. The drawings show how parts fit together, which components go where. Parts are often numbered and named with dimensioned detail drawings.	

Communication techniques.		Examples
What perspective drawing?	Perspective drawings tend to look more realistic than both oblique and isometric techniques, as they visualise objects in a very similar way to our eyes. There are two types of perspective drawing: one-point perspective and two point perspective.	
What is 1 point perspective drawing?	One point perspective is a drawing method that shows how things appear to get smaller as they get further away, converging towards a single 'vanishing point' on the horizon line. It is a way of drawing objects upon a flat piece of paper (or other drawing surface) so that they look three-dimensional and realistic.	
What is 2 point perspective drawing?	Two-point perspective - This shows an object from the side with two vanishing points. It gives the most realistic view of a product as it shows the item edge on, as we would see it. It is often used to produce realistic drawings of an object.	

Communication techniques.		Examples
What is Freehand sketching?	Often used by designers in the generation of their initial ideas. Freehand sketching is an effective way of quickly getting your ideas either in 2D or 3D from your head onto paper. Further along the process, the freehand sketches can be developed in more depth often with a different technique.	
What is isometric drawing?	Isometric drawing Isometric drawing is way of presenting designs or drawings of a 3D object. They are used by architects and engineers to communicate their ideas to the client and manufacturer, showing the product or design to scale. **In order for a design to appear three dimensional, a 30 degree angle is applied to its sides.**	
What is oblique drawing?	**Oblique projection** is a simple type of technical drawing of graphical projection used for producing two-dimensional (2D) images of three-dimensional (3D) objects. The objects are not in perspective and so do not correspond to any view of an object that can be obtained in practice, but the technique yields somewhat convincing and useful. Oblique projection is commonly used in technical drawing. **In order for a design to appear three dimensional, a 45 degree angle is applied to its sides.**	

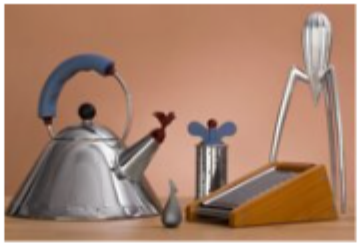
The use of computer aided design and computer aided manufacture.	
What is CAD?	Computer aided design (CAD) is the use of computer software to design new products in 3D. This enables businesses to visualise new designs in a variety of materials and send images around the world for collaboration and consultation. Once production is finalised, these designs are sent to computer aided manufacture (CAM) machines to be formed.
What is CAM?	Computer aided manufacture (CAM) involves using computers to control machines to undertake the production of goods. By using CAM, designs can be sent to CAM machines such as **laser cutters, 3D printers and milling machines.**
What are the advantages of CAD?	• Ideas can be drawn and developed quickly • Designs can be viewed from all angles and with a range of materials • Some testing and consumer feedback can be done before costly production takes place • It becomes easier to design and test a range of ideas
What are the disadvantages of CAD?	• Expensive to set up • Difficult to keep up with constantly changing and improving technology • Computers can fail
What CAD programmes do we use in school?	2D Design and Autodesk Fusion 360



Who is Alessi?

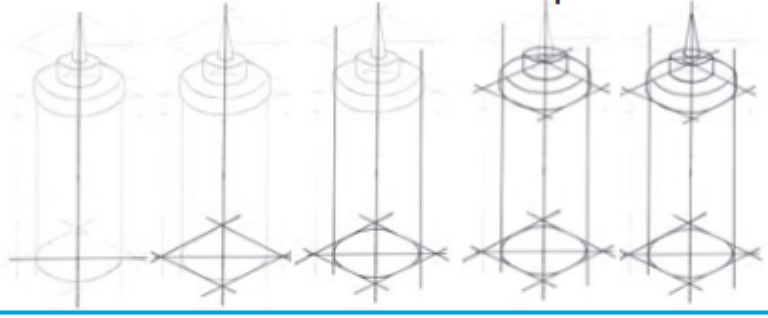
Founded in 1921, Italian brand Alessi is committed to making the ordinary extraordinary. Known for elevating everyday objects from fruit bowls to corkscrews, their designs are instantly recognisable.

From what started as a metalwork factory, Alessi is infamously known for their innovative homeware designs. Designers and architects around the world take everyday objects and turn them into a hybrid of functional art.

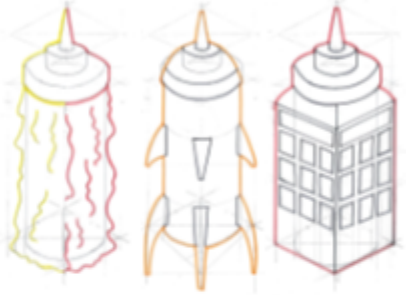


3D Illustration Stepped Support

Consider the basic 3D forms (shapes) of your object, then break it down into individual shapes using guidelines for accuracy. Example: Use the guideline progression steps below to sketch the basic outline.



Example Product Design Outcomes



Keywords:

Hybridization

Definition
What is the meaning?

*The combination of **art** and **functionality** to create an innovative product*

Word Family
Words with a similar meaning

- *Combination*
- *Remix*
- *Fusion*
- *Blend*
- *Mixture*

Examples
Products with this design approach...

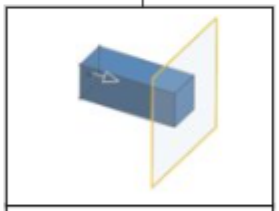
Alessi Products:

- *Bunny & Carrot paper towel holder*
- *Caricature bottle openers*
- *Boat butter dish*
- *Magic bunny toothpick*

Digging Deeper
Why is hybridisation used in design?

To give products a unique selling point.

Extrude



Definition
What is the meaning?

The process of stretching a flat, 2D shape vertically to create a 3D shape

Word Family
Words with a similar meaning

- *Force out*
- *Eject*
- *Release*
- *Express*

Examples
Name a 3D design computer software

- *Fusion 360*
- *OnShape*
- *Sketchup*
- *Autodesk*

Digging Deeper
Why is 3D computer design used within product development?

Designers can view and edit the design easily prior to physical prototyping, which can save time and money.

Ergonomics

Ergonomics is the science of **designing products so they are comfortable, safe, and easy for people to use**. It's all about making sure that any thing we physically interact with fit the person using them as well as.

EXAMPLE – An ergonomically design tool handle is shaped to the contours of your hand, so that it is easy and comfortable to grip.

EXAMPLE – An ergonomically design chair supports your back and helps you sit properly, so you don't get sore after sitting for a long time.

EXAMPLE – An ergonomically design keyboarded is shaped to keep your hands and wrists in a natural position, so you don't get pain from typing.

Inclusive design

Inclusive design means creating things (like buildings, websites, or products) so that **everyone can use them easily, no matter their age, ability, or background**. It's about designers thinking ahead to include people who might have disabilities or other challenges, so no one feels left out.

EXAMPLE – An inclusively designed playground has ramps and swings for kids who use wheelchairs.

EXAMPLE – An inclusively designed website that lets you change the text size or colours to help people with vision issues read it.

Inclusive design helps make the world fairer and easier for everyone to enjoy and interact with. Products that are design inclusively can lead to products that are easier to use by everyone:

EXAMPLE – A single lever tap does not require you to grip or twist it in order to turn it on or adjust the temperature. This means a simple push with your hand, elbow or even chin will enable you to operate it.

Empathetic Design

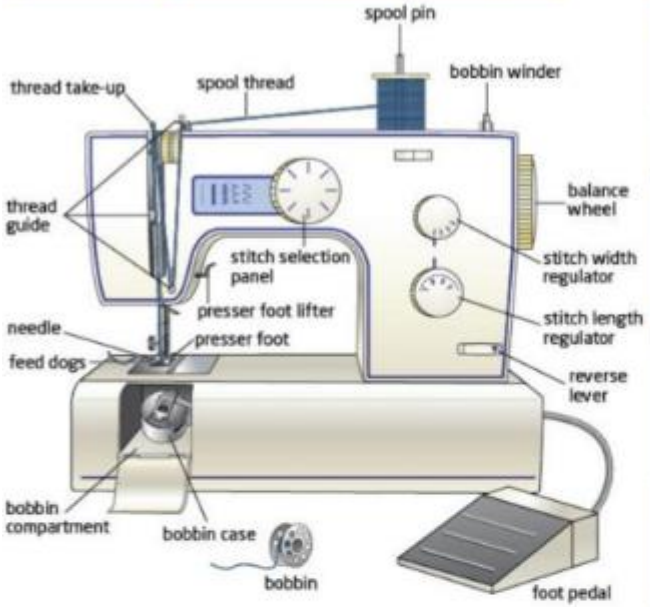
Empathy means understanding and sharing how someone else feels, like imagining what it's like to be in their situation. Therefore, **empathetic design** means putting yourself in someone else's shoes before you create something, so it helps solve their problems or makes their life easier.

Designers will **talk to and observe people** using current products or going about the daily lives, to understand as best they can the issues, struggles and difficulties people have.

However, to help them experience first hand the difficulties people may have, designers can use **specialist tools that help simulate certain conditions or stages of life.**

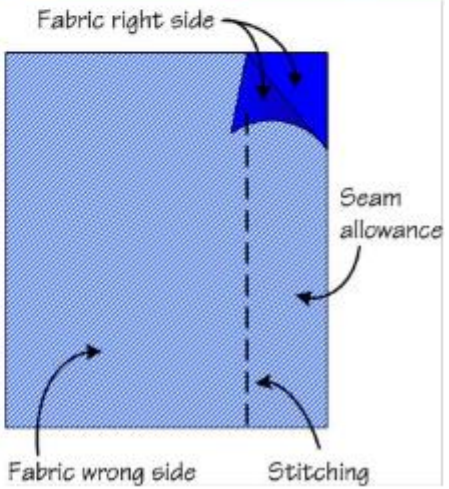
EXAMPLE – Gloves that help simulate the reduction of hand movement associated with arthritis.

Anatomy of a Sewing Machine



How to thread a Sewing Machine

TEXTILES KEYWORDS	DEFINITION
Thread Tension	The amount of thread that can pass through the machine to create the stitch
Stitch Length	The length of one stitch
Spool	A reel on which thread is wound round, which sits on top of the machine. It assists the lower thread by making stitches on the top side of the fabric.
Bobbin	A reel on which thread is wound round, which sits under the needle. It assists the upper thread by making stitches on the bottom side of the fabric.
Presser Foot	an attachment used with sewing machines to hold fabric flat as it is fed through the machine and stitched
Reverse Lever	When pressed, the machine can sew backwards. A back stitch is used to secure the thread at the end of a point or corner.
Balance Wheel	Allows you to move the needle up and down. Useful for threading the needle.
Fabric Interfacing	Interfacing is a textile used on the unseen or "wrong" side of fabrics to make an area of a garment more rigid.
Seam Allowance	The area between the fabric edge and the line of stitches. Doing this ensures that you cut out all of the pattern pieces large enough so that when they are stitched together they fit perfectly.



Knowledge Organiser

100 °C **Boiling Water**
bacteria will be destroyed

75 °C **Cooking/Reheating**

63 °C **Minimum Hot Holding**

37 °C **Body Temperature**
ideal temperature for bacteria to grow

8 °C **Food Storage**
store food at this temperature or below

5 °C **Fridge Temperature**

-18 °C **Freezer Temperature**
bacteria won't grow but may not die

All the above temperatures are guidelines only

The concept of food miles also includes the waste generated from the product, which must be transported from a home to a landfill site. The average household throws away more than three kilograms of food and 14 kilograms of food packaging per week. Buying food with as little packaging as possible and composting organic waste can also make a difference.

Pathogenic bacterium	Where it is found	Typical symptoms	Average onset time
Campylobacter	Raw poultry, meat, milk, sewage	Abdominal pain, diarrhoea (bloody), nausea, fever	48-60 hours
Salmonella	Intestines of humans and animals Raw poultry and meat eggs, milk	Abdominal pain, diarrhoea, nausea, vomiting	12-36 hours
Staphylococcus A	Humans – skin, hair, nose, mouth, throat, cuts, spots	Abdominal pain/cramps, vomiting, chills	1-6 hours
E. coli 0157	Human and animal sewage, water, raw meat, muddy vegetables	Abdominal pain, fever, diarrhoea, vomiting, kidney damage/failure	12-24 hours

Food miles

Food miles are the distance that food travels from field to plate. The means of transport, as well as the distance, is an important consideration when choosing which foods to buy. For example a longer journey by boat has less environmental impact than a shorter one by road.

Carbon footprint

Food miles also lead us to consider the **carbon footprint** of a product. This involves looking at the entire production chain, including all the processes involved in the product's creation and transportation, to calculate the total emissions of carbon dioxide and other greenhouse gases that it is responsible for.

If we choose to buy products that are grown and produced in the UK, it is possible to reduce the amount of unnecessary food miles. However this is not always the case; reports show that even though it reduces food miles, it is less environmentally friendly to grow tomatoes in the UK under glass than it is to import tomatoes from Spain. The reason for this is that Spain's warm climate does not require heated glass houses, meaning the energy used in transporting tomatoes from Spain is less than the energy it would take to heat glass houses for growing tomatoes in the UK.

Ways to reduce food waste

There are many ways that consumers can minimise the amount of food waste they produce.

- Plan your food shopping - this helps to avoid buying food already in the house, or being tempted to buy too much.
- Store food in the correct place at the correct temperature – a cool cupboard, the fridge or the freezer – to avoid it going off prematurely.
- Be waste-free by using up leftovers, for example in soups and smoothies.
- Understand the difference between 'use-by' and 'best before' dates. Food that is eaten after the 'best before' date will not be of such good quality but will not be harmful to eat.
- Compost food that cannot be eaten such as vegetable peelings and teabags.

Cross-contamination

Bacteria have neither wings nor legs and cannot move from one food or surface to another. They need a 'vehicle' for this which is usually a human, insect or animal. For example, if someone uses the same knife to cut raw chicken then without washing it cuts cheese for a sandwich, the pathogenic bacteria will be transferred from the raw chicken to the cheese. This is called **cross-contamination**.

How to prevent cross-contamination

There are a number of precautions that need to be observed to prevent cross-contamination of food.

A pest infestation must be dealt with immediately.

Even domestic animals present a risk. Pets such as cats and dogs can bring pathogenic bacteria into the home, so always wash your hands after touching your pet.

To reproduce, bacteria need to be given ideal conditions which are →

Given ideal conditions, bacteria will reproduce through **binary fission** where one bacterium splits into two bacteria, two into four, four into eight and so on every 10 to 20 minutes. Binary fission will happen more quickly in warm foods and high risk foods left in a warm area. Some bacteria, classed as **anaerobic** bacteria, are able to reproduce without the presence of oxygen.

LACTOSE INTOLERANCE

Lactose intolerance means that the person must avoid cow milk. This can be replaced with other milks such as hazel, hemp, almond, rice or soya milk. Lactose-free products such as cheese are also available.

People with lactose intolerance cannot digest the milk sugar, lactose, because of an enzyme deficiency in the body. The body digests lactose using a substance called lactase to break down lactose into two sugars called glucose and galactose which can then be easily absorbed into the bloodstream. People with lactose intolerance do not produce enough lactase, so lactose stays in the digestive system where it is fermented by bacteria, leading to the production of various gases, causing the symptoms associated with lactose intolerance.

Many processed foods contain lactose. Lactose intolerant people should read the labels to check.

COELIAC DISEASE

Coeliac disease is triggered by gluten (a collective term for protein found in cereals, wheat, rye and barley) and causes the body's immune system to attack its own tissues.

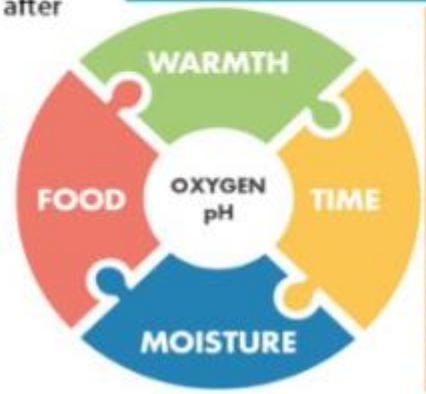
Foods that are naturally gluten-free such as rice, corn, maize, potato, buckwheat, polenta, soya and millet can be made into flours which can be used in gluten-free dishes.

All types of plain meat, fish, eggs, cheese, milk, most yoghurts, fruits, vegetables and pulses (peas, beans and lentils) are also naturally gluten-free and can be eaten freely on a gluten-free diet.

Foods such as bread, biscuits, cakes, couscous and pastas must be avoided.

Gluten can also be found in custard powders, thickening starch, some cheese spreads and sauces.

Gluten-free products are widely available and their packaging carries a special symbol.



REASON FOR COOKING

- To kill **pathogenic bacteria** and toxins making the food safe to eat
- To soften the food making it easier to chew and swallow
- To make the food more digestible
- It improves and intensifies the flavour of food
- The food looks more attractive and appealing
- It reduces the 'bulk' of the food
- Provides variety to our meals
- To enable certain ingredients to work together
- We eat hot food to keep warm in cold weather

Notes