

Y8 Elements, compounds and mixtures

Learned	Revised	Confident
_____ % Achieved: _____		

N°	Keyword	Definition
1	Element	A pure substance which is made from only one type of atom. Elements are listed on the periodic table.
2	Compound	A pure substance made from two or more different elements which are chemically bonded.
3	Mixture	When two or more compounds or elements are mixed but not chemically bonded
4	Molecule	Two or more atoms which are chemically bonded
5	Atom	The smallest particle of an element. They are made from smaller particles called protons, neutrons and electrons.
6	Periodic table	A table which lists all of the chemical elements and arranges them in order of atomic (proton) number

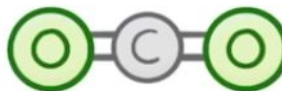
Helium



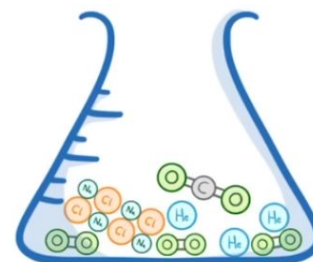
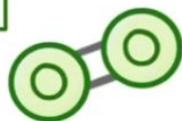
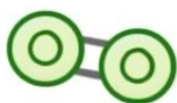
WATER



CARBON DIOXIDE



OXYGEN

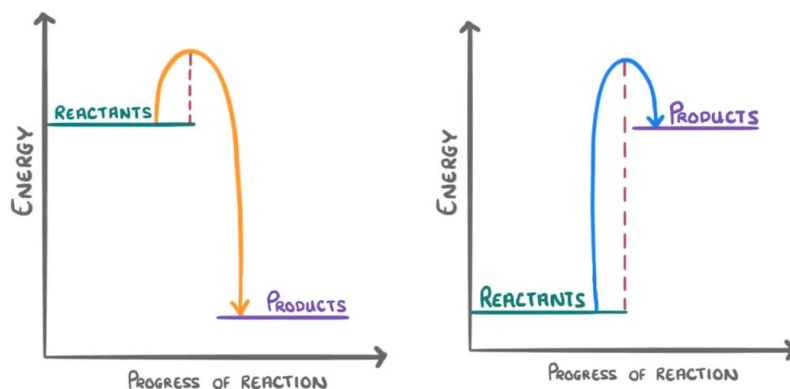


MIXTURE

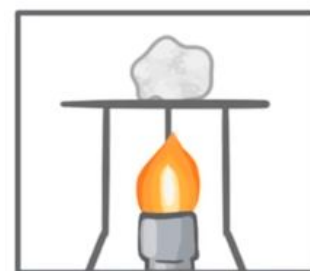
N°	Fact
1	The elements in a compound are bonded in a fixed ratio, this is a chemical formula e.g. water is H_2O and carbon dioxide is CO_2
2	Breaking compounds apart is difficult, the chemical bonds need to be broken in a chemical reaction such as thermal decomposition
3	Mixtures are easy to separate as they aren't bonded. We can use filtration, crystallisation, distillation or chromatography
4	We can represent chemical reactions in word or symbol equations Reactants → Products

Y8 Endothermic and exothermic project

Learned	Revised	Confident
_____ % Achieved: _____		



N°	Keyword	Definition
1	Endothermic	A reaction that takes in energy from its surroundings, it can usually feel cold
2	Exothermic	A reaction that releases energy to its surroundings, it usually feels warm
3	Variables	These are the things that are changed (independent), measured (dependent) and kept the same (control) in an investigation
4	Conclusion	A conclusion describes what has been found in an investigation. It should describe the pattern, use data and explain the findings using scientific knowledge.
5	Evaluation	An evaluation judges how reliable the conclusion is by looking at the results and method. Improvements to the method with explanations should be given.



N°	Fact
1	Some examples of endothermic reactions are photosynthesis and thermal decomposition.
2	Some examples of exothermic reactions are respiration, combustion, neutralisation and displacement.
3	Mixtures are easy to separate as they aren't bonded. We can use filtration, crystallisation, distillation or chromatography
4	We can represent chemical reactions in word or symbol equations Reactants → Products

Y8 Respiration

1

AEROBIC RESPIRATION

GLUCOSE + OXYGEN → CARBON + WATER
DIOXIDE



Learned Revised Confident

_____ % Achieved: _____

N°	Keyword	Definition
2	Respiration	Chemical reaction in the mitochondria that releases energy
3	Aerobic	In the presence of oxygen
4	Anaerobic	In the absence of oxygen
5	Mitochondria	Subcellular structure where respiration takes place
6	Fermentation	Anaerobic respiration carried out in bacteria and yeast
7	Oxygen debt	The amount of oxygen needed to work aerobically or break down the lactic acid.
8	Gas exchange	The exchange of oxygen and carbon dioxide, usually between the blood and lungs or cells



5

9

GLUCOSE → LACTIC ACID

NOT
UNLOCKING
ALL
ENERGY



LACTIC ACID
(BUILD UP)

↳ HAS TO BE REMOVED

10

GLUCOSE → ETHANOL + CARBON
(TYPE OF ALCOHOL) DIOXIDE

N°	Fact
11	Aerobic respiration is longer lasting than anaerobic respiration, it also releases more energy
12	Anaerobic respiration is used in in short, fast bursts of exercise e.g. sprinting
13	Fermentation is used in the brewing and baking industries. The ethanol makes alcohol alcoholic and carbon dioxide makes the bread rise in baking.

Y8 Pressure project

FORCE PER UNIT OF AREA



2

PRESSURE (Pa)

$$P = F/A$$

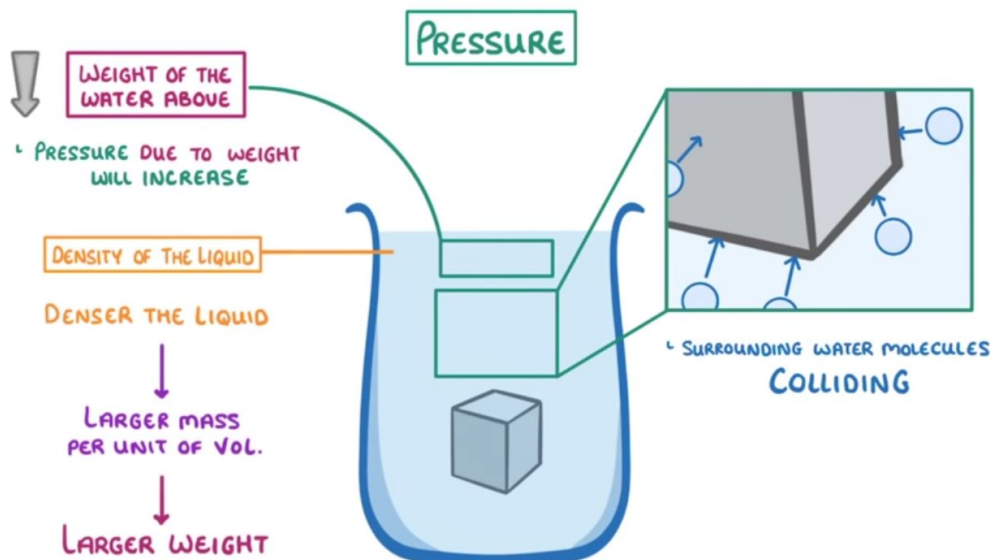
FORCE (N)

AREA (m²)

Learned Revised Confident

_____ % Achieved: _____

Nº	Keyword	Definition
1	Pressure	Pressure is a measure of how spread out a force is.
2	Pressure equation	Pressure = Force / Area



Nº	Facts
3	We can increase the pressure by increasing the force or by decreasing the area
4	Pressure is caused by particles colliding with the walls of a container e.g. a tyre
5	Pressure varies with depth under water and height above sea level
6	The deeper you go under water, the higher the pressure as there are more particles above you so a bigger force
7	The higher you go above sea level the lower the pressure in the atmosphere as the air is less dense so fewer particles so less force



Y8 Electricity

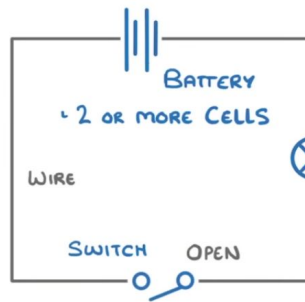
POWER SOURCE

CIRCUITS

↳ CLOSED LOOP



COMPONENTS



POTENTIAL DIFFERENCE

CURRENT

RESISTANCE

Learned	Revised	Confident
_____ % Achieved: _____		

Nº	Keyword	Definition
1	Circuit	An electrical circuit is made of components that are connected using wires
2	Component	A part of a circuit e.g. a battery or lamp. They are represented using symbols
3	Circuit symbol	The scientific way to represent different components in a circuit
4	Current	Current is the flow of charge (electrons) around a circuit. It is measured in amps (A)
5	Potential difference	Potential difference is the energy transferred by each unit of charge. It is measured in volts (V)
6	Series circuit	All of the components in a circuit are in one "loop" with only one route for current to flow
7	Parallel circuit	A circuit that has multiple "loops" or "branches", the current can flow around different routes
8	Resistance	How difficult it is for the current to flow

9

CELL FILAMENT LAMP DIODE LIGHT-EMITTING DIODE (LED)

BATTERY FUSES OPEN SWITCH CLOSED SWITCH FIXED RESISTOR

↳ ONLY ALLOW CURRENT TO FLOW IN ONE DIRECTION

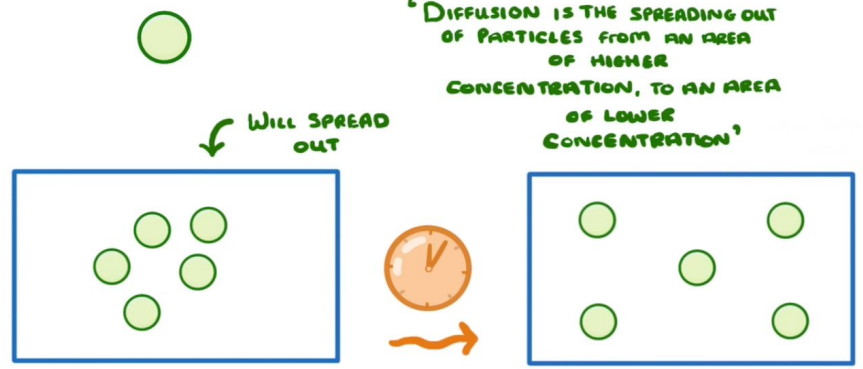
↳ BREAK IF TOO MUCH CURRENT

Nº	Facts
10	A circuit has to be complete to work, this is so that the current can flow.
11	If we add components to a circuit we increase the resistance and this decreases the current
12	The potential difference in a series circuit is shared between all of the components; it totals the same as the power supply (cell or battery)

Y8 Diffusion project

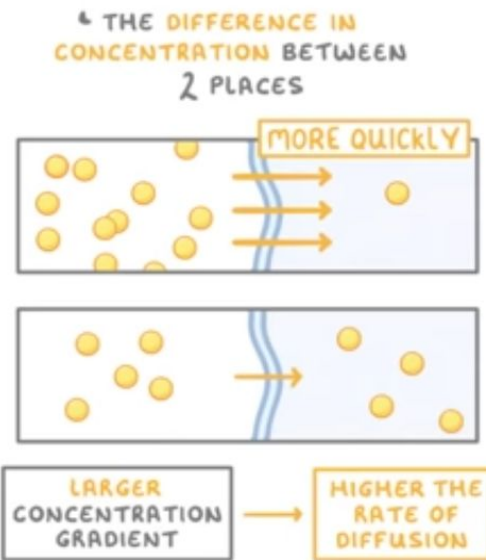
Learned Revised Confident

_____ % Achieved: _____

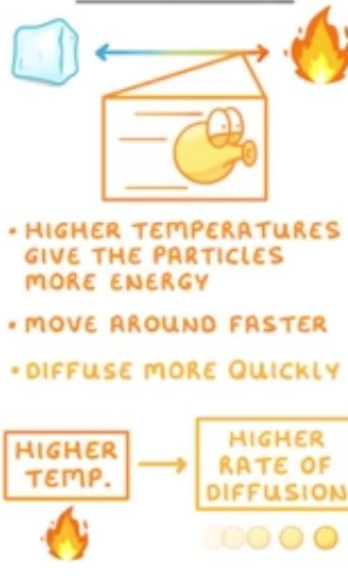


N°	Keyword	Definition
1	Concentration	The number of particles of one substance in a specific volume of another substance.
2	Particle	A single piece of a substance. This could be an atom, molecule or ion.
3	Diffusion	Net movement of particles from an area of high concentration to an area of lower concentration

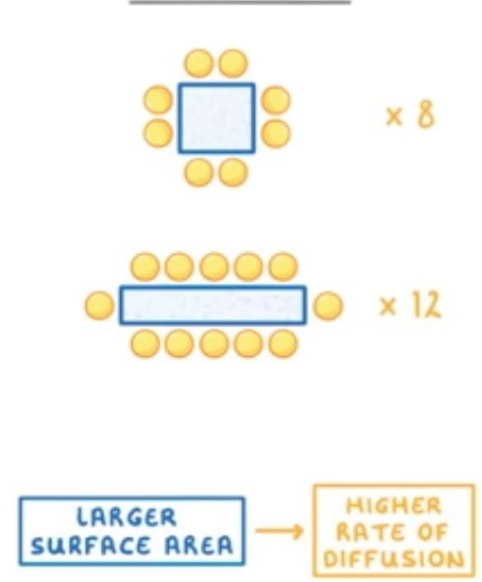
4 CONCENTRATION GRADIENT



5 TEMPERATURE



6 SURFACE AREA



N°	Fact
9	Diffusion is how smells spread through the air or how coffee spreads through hot water
10	Diffusion takes place in our organs. It is how oxygen moves from our lungs into our blood.
11	We can increase the surface area of a solid by cutting it into smaller pieces. This creates more surfaces for diffusion to take place through