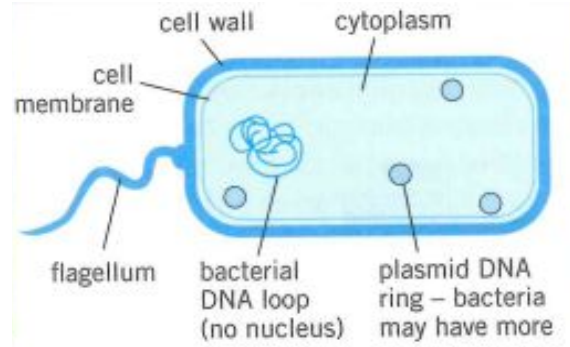


Biology

GCSE Cell Biology

1

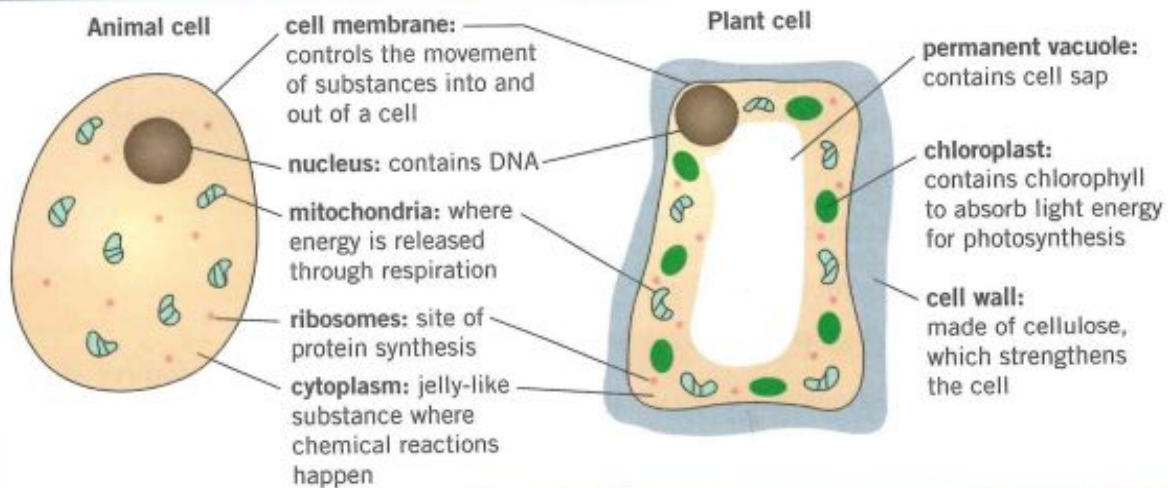
Bacterium



Learned	Revised	Confident
_____ % Achieved: _____		

N°	Keyword	Definition
2	Cell cycle	A process that all body cells use to grow and divide - it includes the stages "cell growth and DNA replication", "mitosis" and "cell division"
3	Chromosome	A long molecule of DNA found in the nucleus, which carries genes
4	Eukaryotic cell	A complex cell that has a nucleus, e.g. plant and animal cells
5	Meristem	Unspecialised cells in plants that are capable of cell division
6	Mitosis	When a cell reproduces itself by splitting to form two identical offspring
7	Prokaryotic cell	A simple cell with no "true nucleus", e.g. a bacterium
8	Specialised cell	A cell that is adapted to a particular function
9	Stem cells	A cell that has not yet become specialised
10	Therapeutic cloning	A type of cloning where the embryo is made to have the same genetic information as the patient

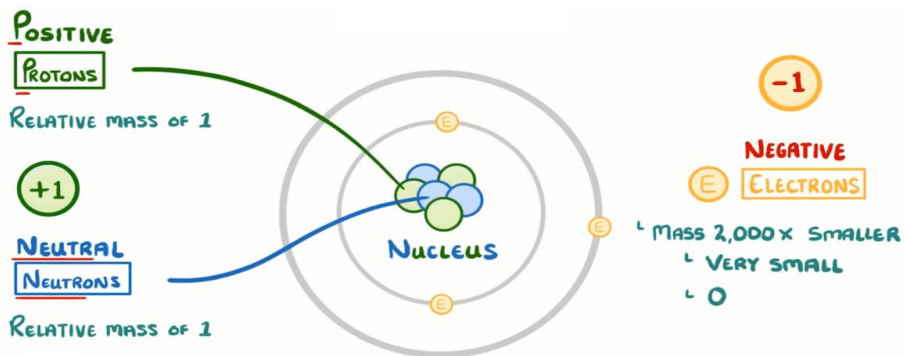
11



N°	Cell transport	
12	Diffusion	Movement of particles from a high concentration to a low concentration
13	Osmosis	Diffusion of water from a dilute solution to a concentrated solution through a partially permeable membrane
14	Active transport	Movement of particles from a low concentration to a high concentration - needs energy from respiration

Chemistry

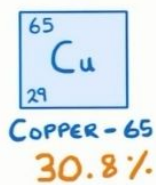
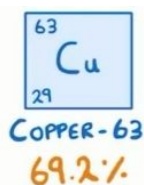
GCSE Atomic structure



Learned Revised Confident

_____ % Achieved: _____

Nº	Keyword	Definition
1	Atom	The smallest part of an element that can exist
2	Element	A substance made from only one type of atom
3	Compound	A substance made from two or more different types of atoms that are chemically bonded
4	Mixture	Two or more different substances that are mixed but not chemically bonded
5	Ion	A charged particle formed from losing or gaining electrons
6	Isotope	Atoms of the same elements, with the same number of protons but a different number of neutrons
7	Electronic configuration	How the electrons are arranged in the shells on an atom
8	Relative atomic mass	The number of protons and neutrons in the nucleus of an atom
9	Atomic (proton) number	The number of protons in the nucleus of an atom



Sum of (ISOTOPE ABUNDANCE x ISOTOPE MASS)

Sum of ABUNDANCE OF ALL ISOTOPES

$$(69.2 \times 63) + (30.8 \times 65)$$

$$69.2 + 30.8$$

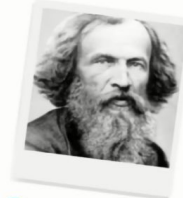
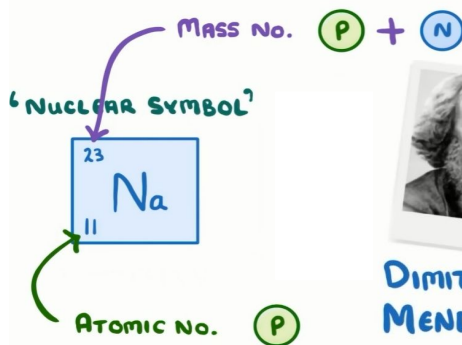
Subatomic particle	Relative mass	Relative charge	Location in atom
Proton	1	+1	Nucleus
Neutron	1	0 / neutral	Nucleus
Electron	1/2000	-1	Shells

Nº	Fact
10	Mixtures can be easily separated through physical processes such as filtration, distillation, chromatography and crystallisation - compounds cannot.
11	When an element loses electrons it forms a positive ion, when it gains electrons it forms a negative ion.

GCSE Periodic table

Learned Revised Confident

_____ % Achieved: _____



DIMITRI MENDELEEV



N°	Keyword	Definition
1	Group	The columns in the periodic table
2	Period	The rows in the periodic table
3	Trend	A pattern that can be seen e.g. reactivity or boiling point
4	Property	How a chemical behaves e.g. during a chemical reaction

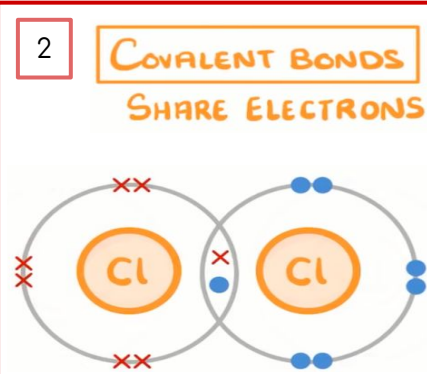
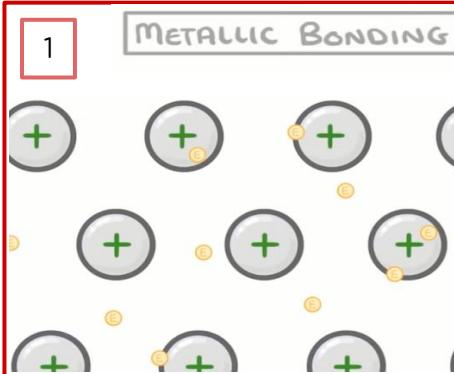
1	2											3	4	5	6	7	0		
		Key relative atomic mass atomic symbol name atomic (proton) number																	
7 Li lithium 3	9 Be beryllium 4											11 B boron 5	12 C carbon 6	14 N nitrogen 7	16 O oxygen 8	19 F fluorine 9	20 Ne neon 10		
23 Na sodium 11	24 Mg magnesium 12											27 Al aluminium 13	28 Si silicon 14	31 P phosphorus 15	32 S sulfur 16	35.5 Cl chlorine 17	40 Ar argon 18		
39 K potassium 19	40 Ca calcium 20	45 Sc scandium 21	48 Ti titanium 22	51 V vanadium 23	52 Cr chromium 24	55 Mn manganese 25	56 Fe iron 26	59 Co cobalt 27	59 Ni nickel 28	63.5 Cu copper 29	65 Zn zinc 30	70 Ga gallium 31	73 Ge germanium 32	75 As arsenic 33	79 Se selenium 34	80 Br bromine 35	84 Kr krypton 36		
85 Rb rubidium 37	88 Sr strontium 38	89 Y yttrium 39	91 Zr zirconium 40	93 Nb niobium 41	96 Mo molybdenum 42	[98] Tc technetium 43	101 Ru ruthenium 44	103 Rh rhodium 45	106 Pd palladium 46	108 Ag silver 47	112 Cd cadmium 48	115 In indium 49	119 Sn tin 50	122 Sb antimony 51	128 Te tellurium 52	127 I iodine 53	131 Xe xenon 54		
133 Cs caesium 55	137 Ba barium 56	139 La* lanthanum 57	178 Hf hafnium 72	181 Ta tantalum 73	184 W tungsten 74	186 Re rhenium 75	190 Os osmium 76	192 Ir iridium 77	195 Pt platinum 78	197 Au gold 79	201 Hg mercury 80	204 Tl thallium 81	207 Pb lead 82	209 Bi bismuth 83	[209] Po polonium 84	[210] At astatine 85	[222] Rn radon 86		
[223] Fr francium 87	[226] Ra radium 88	[227] Ac* actinium 89	[261] Rf rutherfordium 104	[262] Db dubnium 105	[266] Sg seaborgium 106	[264] Bh bohrium 107	[277] Hs hassium 108	[268] Mt meitnerium 109	[271] Ds darmstadtium 110	[272] Rg roentgenium 111	[285] Cn copernicium 112	[286] Nh nihonium 113	[289] Fl flerovium 114	[289] Mc moscovium 115	[293] Lv livermorium 116	[294] Ts tennessine 117	[294] Og oganeson 118		

N°	Fact
5	Elements in the same group all have similar properties, this is because they have the same number of electrons on their outer shell
6	Elements in the same period have the same number of electron shells
7	Down a group: Atomic radius increases; the number of electron shells increases; the outer shell/electron is further away from the nucleus; nuclear attraction decreases. These 4 factors affect the reactivity of the elements in that group
8	The boiling/melting points of group 7 and 8 increase as you go down the group. This is because the atoms/molecules get bigger and so they have more intermolecular forces to overcome.

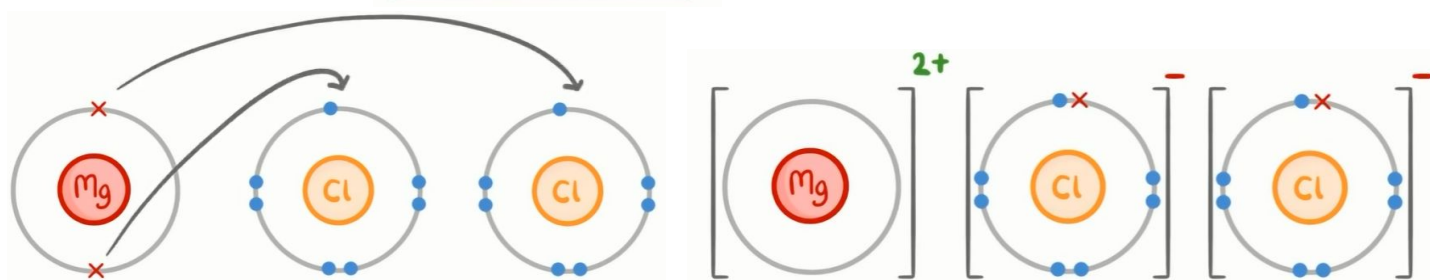
GCSE Structure and bonding

Learned Revised Confident

_____ % Achieved: _____



3 **IONIC BONDS** **TRANSFER OF ELECTRONS**

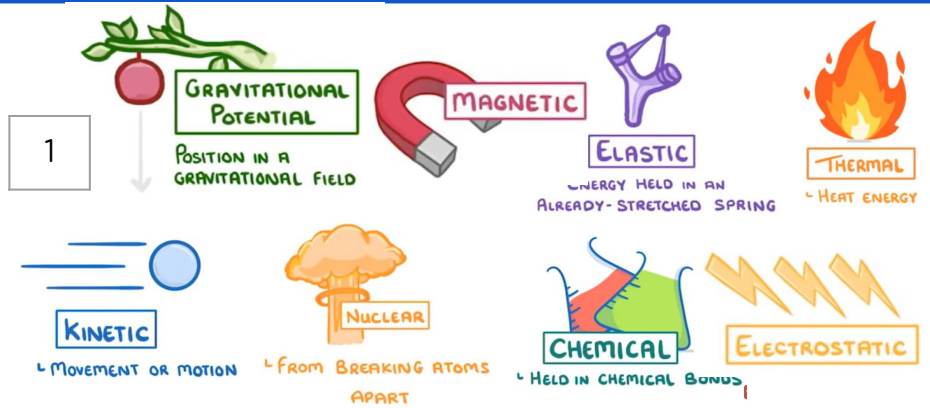


Nº	Keyword	Definition
4	Delocalised electron	An electronic that isn't associated with an atom or bond, it is free to move through the structure
5	Metallic bond	Giant structure of positive metal ions in a sea of delocalised electrons-forming strong electrostatic forces of attraction
6	Ionic bond	Strong electrostatic forces of attraction between oppositely charged ions (formed from the transfer of electrons)
7	Covalent bond	Shared pair(s) of electrons between non-metal atoms
8	Electrostatic forces	Strong forces of attraction between oppositely charged particles e.g. ions and/or electrons
9	Intermolecular forces	Weak forces of attraction that occur between molecules.

Nº	Fact
10	In bonding, atoms look to gain a full outer shell of electrons. They can lose electrons to drop down a shell, gain to fill their shell or share electrons between their outer shell
11	In ionic bonding, the metal atom loses electron(s) to become a positive ion, the non-metal gains the electron to become a negative ion. These ions then form a giant structure.
12	In covalent bonding, atoms share pairs of electrons to fill their outer shells. This can form a simple molecule (e.g. H ₂ O) or a giant structure like diamond.
13	The properties of a substance relate to its structure and bonding. For example, giant structures will generally have high melting and boiling points whereas small, simple structures will have low melting and boiling points

Physics

GCSE Energy



Learned	Revised	Confident
_____ % Achieved: _____		

N°	Keyword	Definition
2	Conduction	The process by which vibrating particles in solids transfer energy to neighbouring particles.
3	Convection	Where more energetic particles in fluids move apart, become less dense, and rise through the fluid (from hot to cold)
4	Non renewable	An energy resource that is finite (cannot be replaced as quickly as it is used) - it will run out
5	Renewable	An energy resource that can be replaced as quickly as it is being used - it will not run out
6	System	An object or group of objects
7	Work done	Energy transferred

N°	Facts
8	Energy can be transferred usefully, stored, or dissipated, but never created or destroyed
9	Specific heat capacity is the amount of energy needed to raise the temperature of a substance of a 1kg substance by 1°C
10	Efficiency can be increased by streamlining and lubricating.
11	Energy resources are used for generating electricity, heating and transport.

N°	Equations to learn
12	$\text{Kinetic energy} = 0.5 \times \text{mass} \times \text{speed}^2$
13	$\text{Gravitational potential energy} = \text{mass} \times \text{gravitational field strength} \times \text{height}$
14	$\text{Power} = \frac{\text{energy transferred}}{\text{time}}$
15	$\text{Power} = \frac{\text{work done}}{\text{time}}$
16	$\text{Efficiency} = \frac{\text{useful power output}}{\text{total power input}}$
17	$\text{Efficiency} = \frac{\text{useful output energy transfer}}{\text{total input energy transfer}}$