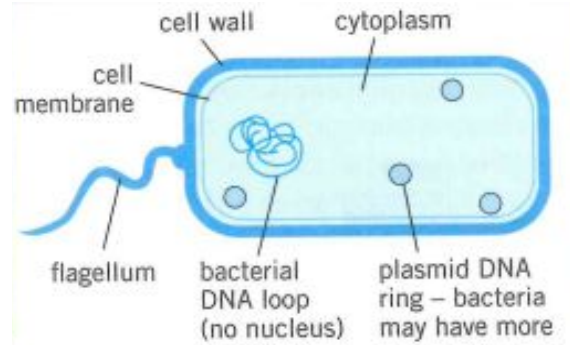


# Biology

# GCSE Cell Biology

1

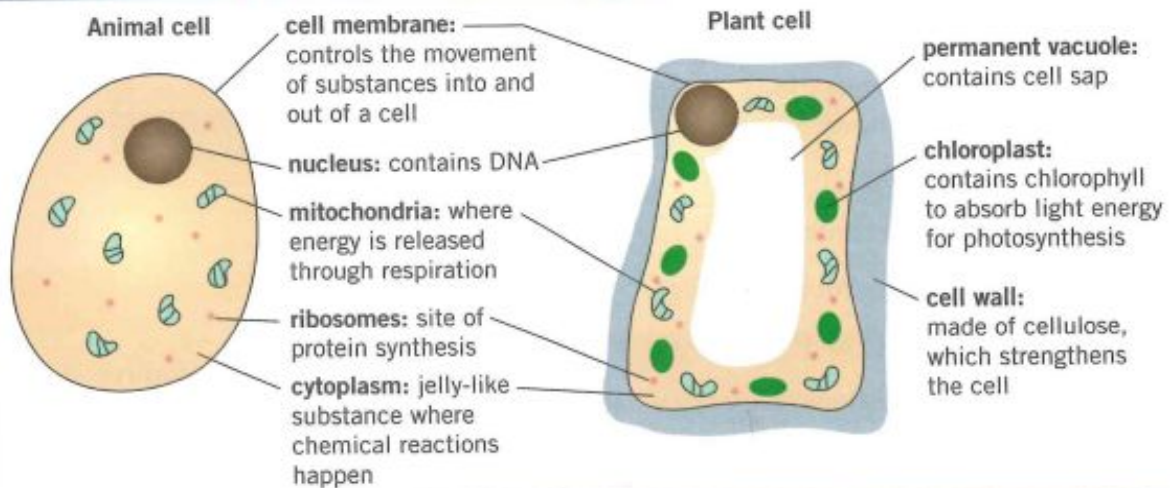
Bacterium



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

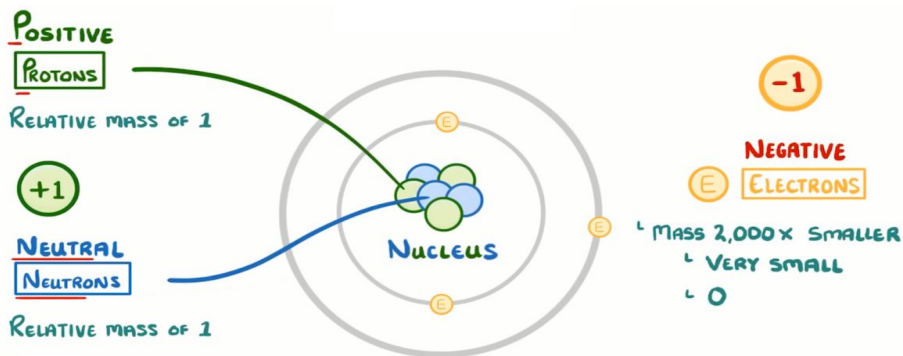
11



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

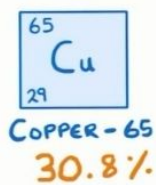
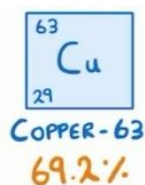
Chemistry

# 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

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

$$69.2 + 30.8$$

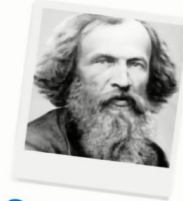
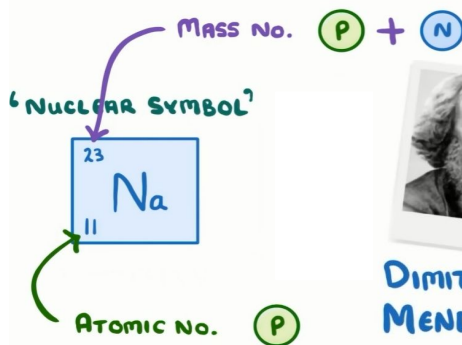
Subatomic particle	Relative mass	Relative charge	Location in atom
Proton	1	+1	Nucleus
Neutron	1	0 / neutral	Nucleus
Electron	1/2000	-1	Shells

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

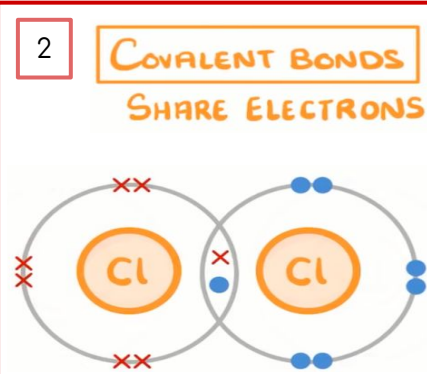
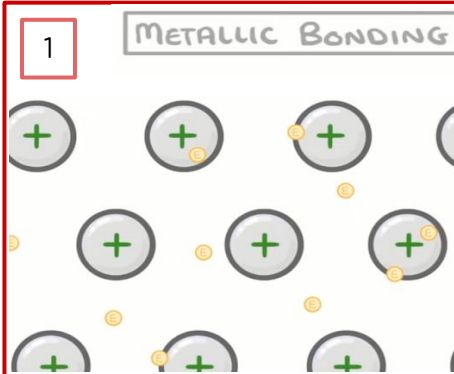
1	2											3	4	5	6	7	0		
		<b>Key</b> relative atomic mass atomic symbol name atomic (proton) number																	4 <b>He</b> helium 2
7 <b>Li</b> lithium 3	9 <b>Be</b> beryllium 4											11 <b>B</b> boron 5	12 <b>C</b> carbon 6	14 <b>N</b> nitrogen 7	16 <b>O</b> oxygen 8	19 <b>F</b> fluorine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

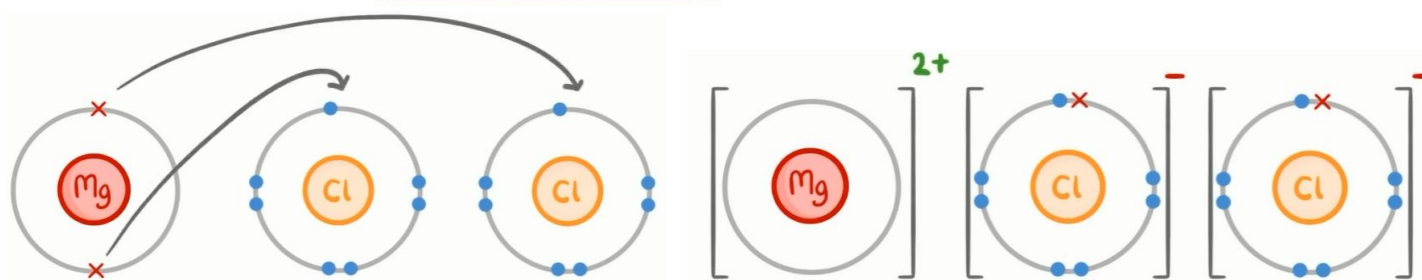
# GCSE Structure and bonding

Learned      Revised      Confident

\_\_\_\_\_ % Achieved: \_\_\_\_\_



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

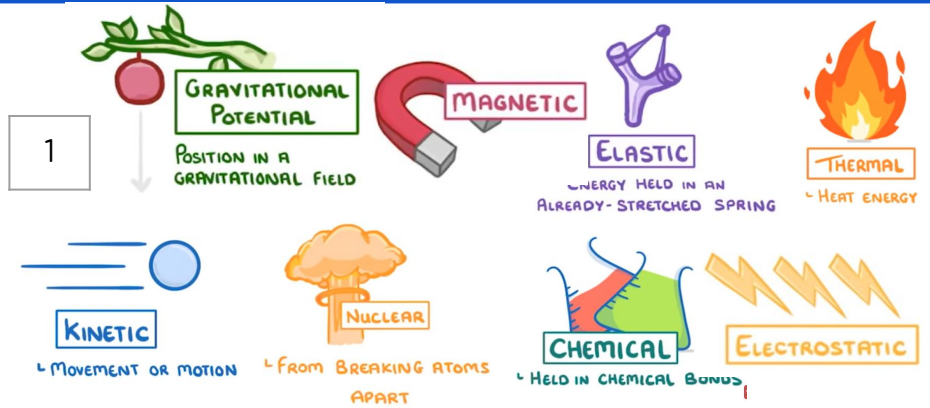


Nº	Keyword	Definition
4	Delocalised electron	An electronic that isn't associated with an atom or bond, it is free to move through the structure
5	Metallic bond	Giant structure of positive metal ions in a sea of delocalised electrons-forming strong electrostatic forces of attraction
6	Ionic bond	Strong 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 <sub>2</sub> 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	$\text{Efficiency} = \frac{\text{useful output energy transfer}}{\text{total input energy transfer}}$