

2.1 – Modern Periodic Table	
Periodic Table	118 elements in order of atomic number.
Groups	Vertical columns. Contain elements with similar chemical properties.
Group number	Tells you the number of electrons in the outer shell.
Periods	Horizontal rows.
Period Number	Tells you the number of shells.
Metals	Found on left side. Conductors of heat and electricity, strong, malleable and high melting and boiling points.
Non-metals	Found on right side. Insulators of heat and electricity, dull, brittle, lower melting and boiling points.
2.2 – Development of Periodic Table	
Early tables	Fewer elements (e.g. no noble gases). Arranged in order of atomic weight (no knowledge of atomic number yet).
Newland's table	Not well accepted. Elements in same group often had different properties, some boxes had 2 elements.
Mendeleev's table	Well accepted. Left gaps for undiscovered elements and switched places of some to ensure elements with similar properties in same group.
Mendeleev's predictions	Used table to predict properties of undiscovered elements. Turned out to be correct.

2.3 – Group 1 Alkali Metals (lithium, sodium, potassium)	
Properties	Soft, low density, shiny when cut but quickly go dull when they react with oxygen in air.
Reactions with water	Vigorous reactions - produce an alkaline solution. $\text{metal (s)} + \text{water (l)} \rightarrow \text{metal hydroxide (aq)} + \text{hydrogen (g)}$
Reactions with chlorine	Produce a white metal chloride salt. $\text{metal (s)} + \text{chlorine (g)} \rightarrow \text{metal chloride (s)}$
Reactions with oxygen	Forms dull metal oxide layer. $\text{metal (s)} + \text{oxygen (g)} \rightarrow \text{metal oxide (s)}$
Trends down the group	Increasing reactivity and decreasing melting and boiling points.
2.4 – Group 7 Halogens (fluorine, chlorine, bromine, iodine)	
Properties	Fluorine = pale yellow gas, chlorine = yellow-green gas, bromine = red-brown liquid, iodine = grey solid with purple vapour.
Diatomic Molecules	Made of pairs of atoms $\rightarrow \text{F}_2, \text{Cl}_2, \text{Br}_2, \text{I}_2$.
Trends down the group	Decreasing reactivity and increasing melting and boiling points.
Reactions with metals	React with metals to form metal halide salts.
Displacement Reactions	A more reactive halogen can displace a less reactive halogen from its salt.
2.5 – Group 0 Noble Gases (helium, neon, argon, krypton)	
Properties	Inert (very unreactive), colourless gases, non-flammable.
Electrons	Full outer shell of electrons \rightarrow very stable \rightarrow do not react.
Trends down the group	Increasing boiling point.

Y9 Science – Cycle 1 – Sheet 2

Chemistry C1 – Periodic Table

