

The Periodic Table – Group 1, 7 and 0

Key word	Definition
Alkali metals	Elements in group 1 of the periodic table.
Ionic compounds	A compound that contains positive and negative ions held together in a regular arrangement (lattice) by electrostatic forces of attraction.
Halogens	Elements in group 7 of the periodic table.
Halides	An ion with a 1- charge formed when a Halogen atom gains an electron.
Noble gases	Elements in group 0 of the periodic table.
Inert	Not chemically reactive.

Group 7

19	F	Fluorine	9
35.5	Cl	Chlorine	17
80	Br	Bromine	35
127	I	Iodine	53
210	At	Astatine	85

Group 7 Elements

- Also called the halogens.
- As elements they form molecules that contain two atoms.
- E.g. Cl₂ is chlorine

Reactions with non-metals

They share electrons and form covalent bonds

Reactions with metals

- Halogens form ionic bonds with metals to form negative ions called halides.
- E.g. sodium chloride, which is an ionic structure.



Properties as you go DOWN Group 1, 7 and 0.		
Group 1	Group 7	Group 0
Reactivity increases	Reactivity decreases	Unreactive
Melting and Boiling points get lower	Melting and Boiling points get higher	Boiling point gets higher
Relative atomic mass goes up	Relative atomic mass goes up	Relative atomic mass goes up

Group 0 Elements

- Also called the noble gases.
- Colourless gases at room temperature.
- All have 8 electrons in the outer shell, apart from Helium which has 2 - stable full outer shell.
- Unreactive.

They are very unreactive. This means they don't form molecules easily, so elements are found as single atoms.

Group 0

4	He	Helium
20	Ne	Neon
40	Ar	Argon
84	Kr	Krypton
131	Xe	Xenon
222	Rn	Radon



Group 1 Elements

- 1 electron in the outer shell. This makes them very reactive.
- Easily lose one electron in outer shell to form a full outer shell.
- They form positive ions.
- They're soft.
- They have a low density.

Reactions with water

Vigorous reaction to produce metal hydroxide (salt) and hydrogen gas.

Reaction with Chlorine

Vigorous reaction when heated in chlorine gas to form metal chlorides (white salts).

Reaction with Oxygen

React with oxygen to form metal oxide. It makes the shiny group 1 metal go a dull grey.

Group 1

7	Li	Lithium
23	Na	Sodium
39	K	Potassium
85	Rb	Rubidium
133	Cs	Caesium
223	Fr	Francium