

Topic 12 – The Periodic Table

Aspect	Alkali metal (Grp I)	Halogen (Grp VII)	Noble gas (Grp 0)	Transition metal
Physical properties	<ol style="list-style-type: none"> 1. Soft (can be cut easily) 2. Low <i>mp</i> & <i>bp</i> 3. Low density (Li, Na, K float on water) 	<ol style="list-style-type: none"> 1. Diatomic covalent molecules 2. Low <i>mp</i> & <i>bp</i> 3. Coloured 	<ol style="list-style-type: none"> 1. Colourless gases (r.t.p.) 2. Low <i>mp</i> & <i>bp</i> 3. Insoluble in water 	<ol style="list-style-type: none"> 1. High <i>mp</i> & <i>bp</i> 2. High densities
Chemical properties	<ol style="list-style-type: none"> 1. React with cold water → alkali + hydrogen 2. Powerful reducing agents (give away e⁻ readily) 3. Form ionic compounds (colourless) 	<ol style="list-style-type: none"> 1. Displacement reaction (more reactive halogen displaces less reactive halogen out of its halide sol) 2. Powerful oxidising agents (receive e⁻ readily) 	<ol style="list-style-type: none"> 1. Monoatomic 2. Unreactive 	<ol style="list-style-type: none"> 1. Variable oxidation states 2. Form coloured compounds 3. Good catalysts
Trend	<ol style="list-style-type: none"> 1. <i>mp</i> & <i>bp</i> ↓ 2. Density ↑ 3. Reactivity increases (Li < Na < K) 	<ol style="list-style-type: none"> 1. <i>mp</i> & <i>bp</i> ↑ 2. Colours become darker 3. Reactivity decreases (F > Cl > Br > I > At) 		