

Special Groups in the Periodic Table

Group 1 (Alkali metals)

- * hydrogen is not an alkali metal
- shiny + soft (can be cut with a knife + they get softer as you down the group)
- melting point gets lower when you down the group
- highly reactive with water + oxygen
- Lithium used in rechargeable batteries

Group 2: Alkali Earth Metals

- harder than group 1
- low density
- very reactive (barium + calcium react with water)
- many are used to make alloys (bronze, stainless steel) to increase strength.

Transition Metals

- groups 3 to 12
- strong metallic properties such as high melting point, conduct electricity, ductile

Non-metals

- dull, brittle solids
- colourful gases

- poor conductors of electricity or heat (good insulators)
- low melting point.

Group 17 Halogens

- highly reactive (most often found as compounds in nature)
- mainly gases (except bromine)
- brightly coloured
- toxic in elemental form

Applications: → pesticides,
disinfectants & plastics

Group 18: Nobel gases

- least reactive of all the elements • usually said to not react. (naturally)
- odourless, colourless gases
- helium + neon never form compounds.
- neon - neon signs
 - full valence shell which explains why they don't react.

Semi-metals / Metalloids

- found on either side of staircase
- have physical + chemical properties of both metals + non-metals.
- most are shiny, like metals

- brittle and not ductile (like non-metals)
- poor conductors generally

Ex Silicon

- 2nd most abundant element in Earth's crust
- conducts electricity so used in electronic devices
- poor conductor of heat with a high melting point so used in cookware

Hydrogen

- colourless, odourless, tasteless gas
- highly flammable
- makes up over 90% of atoms in the universe
- on earth, mostly found

as a compound bonded to oxygen in water

- lightest known element and only has 1 proton.
- the periodic table arranges elements by the # of protons so this is why H is in period 1, group 1.

Why is hydrogen also found on the right side?

- hydrogen only has 1 proton and 1 electron. When it reacts it can act as both a metal (gives up an electron) and as a non-metal (accepts an electron)