nistry

The Periodic Table

John Newlands: Law of octaves - elements in order of atomic weight had similar properties for every ~~eight~~ eighth element.
however he doubled up octaves and didn't leave gaps for undiscovered elements.

Dimitri Mendeleev: elements placed in order of atomic mass.
- periodic pattern in their physical and chemical properties was visible
- he left gaps for undiscovered elements and predicted their properties

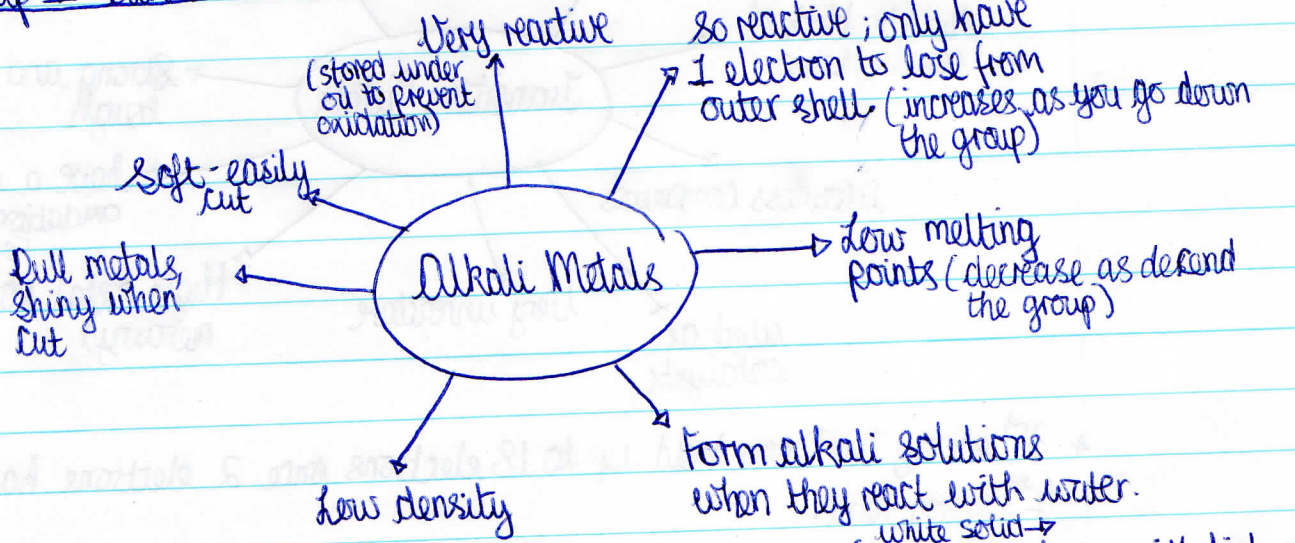
MODERN PERIODIC TABLE

- arrange elements in order of atomic (proton) number - puts them in right place as shown by their patterns of physical and chemical properties.
- same group elements have similar properties as they have same number of electrons in outer shell.

Reactivity

As we descend a group the number of energy levels increases → atoms get bigger. Outer electrons further away from positive nucleus. So larger atoms lose electrons more easily & gain electrons less easily. This is because outer electrons are further from the nucleus. The inner energy levels "screen" or "shield" outer electrons from positive charge in the nucleus.

Group 1 - Alkali Metals



- ★ Reaction with water produces a soluble metal hydroxide. (colourless solution with high pH)
- ★ React vigorously with non metals such as chlorine. (white solid →)
- ★ Alkali metals are ionic, so form crystals