Edexcel GCSE Chemistry

Topic 6: Groups in the periodic table

Group 1

Notes

6.1 Explain why some elements can be classified as alkali metals (group 1), halogens (group 7) or noble gases (group 0), based on their position in the periodic table

- Groups (columns) in the periodic table can be classified in specific groups as e.g. alkali metals, halogens or noble gases, because they have the same number of electrons in their outer shell (position in the periodic table determines this), therefore they have the same chemical properties

6.2 Recall that alkali metals: are soft and have relatively low melting points

6.3 Describe the reactions of lithium, sodium and potassium with water

- Lithium, sodium and potassium in group one react vigorously with water to create an alkaline metal hydroxide and hydrogen.

6.4 Describe the pattern in reactivity of the alkali metals, lithium, sodium and potassium, with water; and use this pattern to predict the reactivity of other metals

metal	reaction with water
lithium	fizzes steadily
sodium	melts into a ball then fizzes quickly
potassium	gives off sparks and hydrogen burns with a lilac flame

- as shown by the way the reactions with water become more vigourous down the group, the reactivity of all alkali metals increases down the group

6.5 Explain this pattern in reactivity in terms of electronic configurations

- Down the group – easier to lose electrons and form positive metal ions (cations) (these are formed when metals react)
- It is easier to lose electrons due to the increase in electron shells as you go down the group. This means there is more electron shielding and so decrease in attraction between the positively charged nucleus and the negatively charged outer shell electrons, which can then be lost more easily