

# Edexcel IGCSE Chemistry

## Topic 2: Inorganic chemistry

### Group 1 (alkali metals) – lithium, sodium and potassium

#### Notes





### 2.1 understand how the similarities in the reactions of these elements with water provide evidence for their recognition as a family of elements

- They have characteristic properties due to the single electron in their outer shell.
- All of the metals in group one react vigorously with water to create an alkaline solution and hydrogen.

### 2.2 understand how the differences between the reactions of these elements with air and water provide evidence for the trend in reactivity in Group 1

- They all react with oxygen to create an oxide.
- More bubbles with reaction with water = more vigorous reaction = more reactive alkali metal
- Reactivity increases down the group – therefore reactivity increases from lithium to potassium

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

### 2.3 use knowledge of trends in Group 1 to predict the properties of other alkali metals

- see 2.2- increase in reactivity down the group applies for any reaction

### 2.4 (chemistry only) explain the trend in reactivity in Group 1 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

