

## Chemguide – questions

### GROUP 1: ATOMIC AND PHYSICAL PROPERTIES

- Explain why the single outer electron in both sodium (2,8,1) and potassium (2,8,8,1) feel the same net pull from the nucleus of +1.
  - If they both feel the same net pull from the nucleus, why is the potassium atom bigger than a sodium atom?
- Define the term *first ionisation energy*.
  - Explain as fully as you can why first ionisation falls as you go down Group 1.
- What do you understand by the term *electronegativity*?
  - How does electronegativity change as you go down Group 1?
  - Explain this trend in electronegativity.
- How do the melting and boiling points of Group 1 metals change as you go down the group?
  - All of these metals are held together by metallic bonding. Describe briefly how metallic bonding works.
  - Explain why the melting and boiling points of the Group 1 metals change as you have described in 4(a).
- Which of the Group 1 metals float on water, and which sink?
  - Sodium and potassium pack in exactly the same way in the solid metal. Potassium is a heavier atom than sodium and has a greater atomic radius.
    - If the **only** difference between sodium and potassium was the **mass** of the atoms, how would potassium's density compare with sodium's? Explain your answer.
    - If the **only** difference between sodium and potassium was the **radius** of the atoms, how would potassium's density compare with sodium's? Explain your answer.