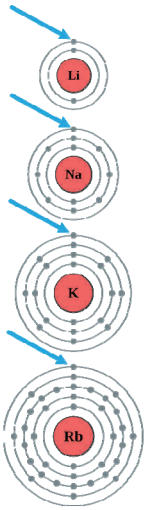
Name _____ Class _____ Date _____/_____/20_____

The Group 1 Metals



ACTIVITY - Look at the images of the four Group 1 Metals, can you see a pattern forming?

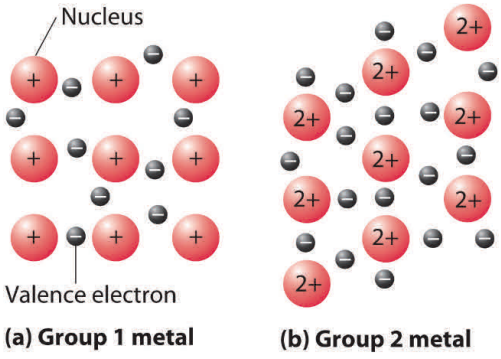
EXTENSION -Think about the attraction between the nucleus and the electrons, especially the ones furthest away....what can you say about this?

THE FURTHER AWAY THE ELECTRONS ARE FROM THE NUCLEUS, THE WEAKER THE ATTRACTION*, SO ELECTRONS FURTHEST AWAY ARE 'LOST' MORE READILY.

THIS MEANS THAT THE METALS THAT LOSE ELECTRONS MORE EASILY ARE THE MOST REACTIVE

The Group Number is an indication of the number of OUTERMOST electrons in the VALENCE shell (the outer electrons in general are the ones that take part in chemical reactions either by transfer or sharing.

The melting points of the Group 1 metals are not typical of the melting points of metals in general. You are probably used to a metal that has to be heated in a furnace to melt it, not in your hand! (as is the case for Rubidium and Caesium.



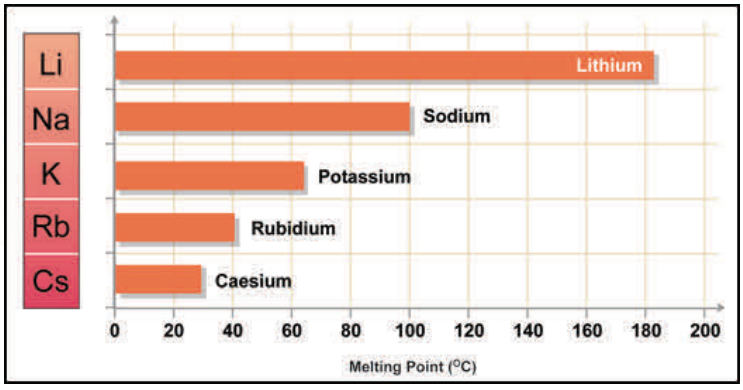
(a) Group 1 metal **(b) Group 2 metal**

Are Group 1 elements like other metals?

The Group 1 elements are to the left of the stepped line. This shows that they are metals. In many ways, Group 1 elements are like other metals:

- They are good conductors of electricity and heat.
- They are shiny when freshly cut.

In some ways, Group 1 elements are different to other metals. The table shows that Group 1 elements have lower melting points than other metals.



The melting point of a metal is determined by the strength of the metallic bonding holding the structure together (like in the Group 1 - Group 2 image above). Large atoms with few delocalised electrons like the Group 1 metals will have weaker electrostatic force and so the melting points will decrease as we proceed down the group. The weakness of the structure also accounts for why these metals can be cut with a knife.

You can probably understand why Rubidium couldn't be demonstrated in the lab at school!

https://www.youtube.com/watch?v=m55kgyApYrY