

Periodic Table Trends - Ions

Draw energy level diagrams for each of the missing elements in the periodic table

I							VIII	
		Transition metals are more complicated. Ignore them until year 11.						

1. What is a valence electron?

An electron in the outer shell

2. How does the number of valence electrons change as you move across a period (row) in the periodic table?

The valence electrons increase by one each time

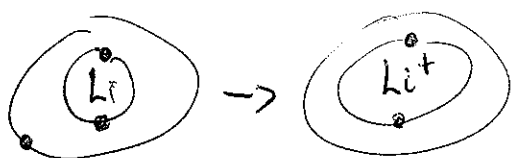
3. How does the number of valence electrons change as you move down a group (column) in the periodic table?

Group number = valence electrons (eg: Group 4 has 4 valence electrons)

4. What do you notice about the number of valence electrons and the group number?

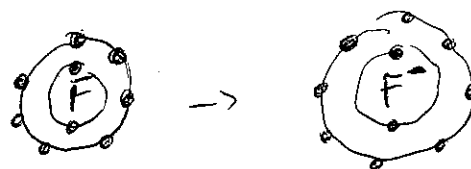
Valence electrons stay the same

5. What causes the elements in group 1 to always have a +1 charged ion while the elements in group 7 always have a -1 charged ion? Draw a picture to help explain your reasoning.



Group one elements have one valence electron which is lost to create a full outer shell (more stable)

=> +1 charge



Group 7 elements have 7 valence electrons so easily gain one more to create a full outer shell.
=> -1 charge