

Electrons are arranged around the nucleus in shells, each cell represents a different energy level. The lowest energy is shown by the shell which is nearest the nucleus.  $2e^-$  in first shell,  $8e^-$  in every one after that.

The group number tells you how many electrons there are in the outer shell, the atomic number tells you how many electrons there are around the atom.

As you descend a group, you add another shell.

Mixtures are easy to separate as they aren't held together and have different physical bonds. It is harder to separate atoms in a compound because you have to break bonds of atoms.

**Ionic Bonding**

• They are usually formed when metals react with non-metals.

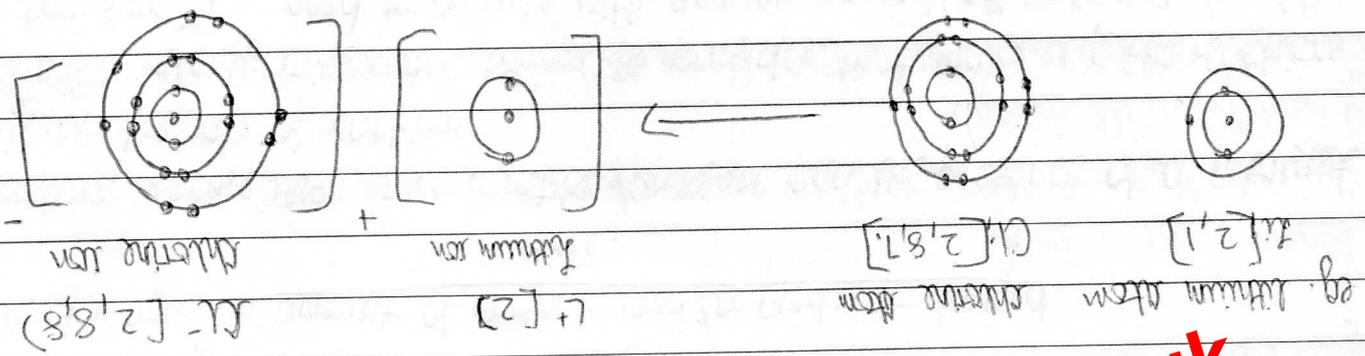
• Metals lose electrons, non-metals gain electrons.

• They are held by extremely strong forces of attraction between the oppositely charged ions. The electrostatic force of attraction is called the ionic bond.

• The metals lose electrons, non-metals gain electrons.

• Ionic bonds make a ionic lattice of positive and negative electrons

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**Covalent Bonding**

- Non-metals react together by sharing electrons. - A pair of electrons make one bond.
- Can be simple or giant structures.
- They want to achieve the structure of noble gas.
- e.g. in covalent bond in hydrogen

