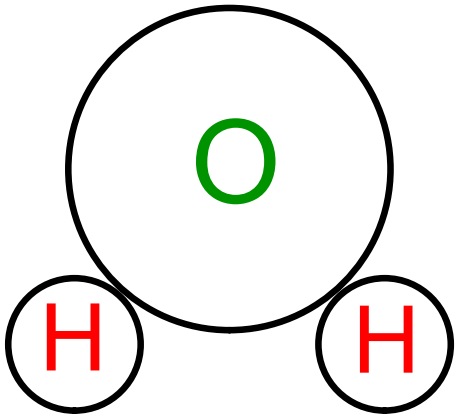
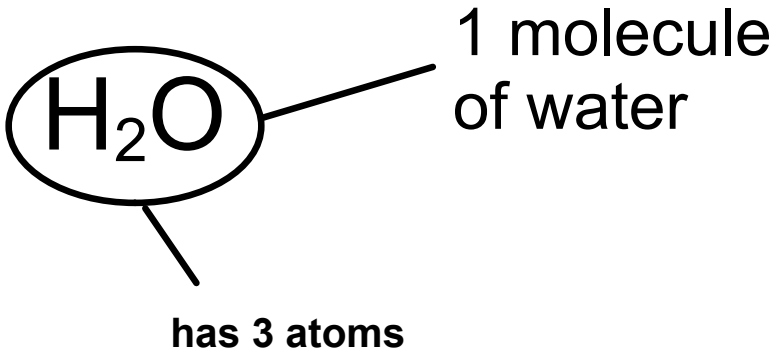
Chapter 31 - Chemical Bonding

A Molecule - a group of atoms joined together. It is the smallest particle of an element or compound that can exist on its own.
e.g. water



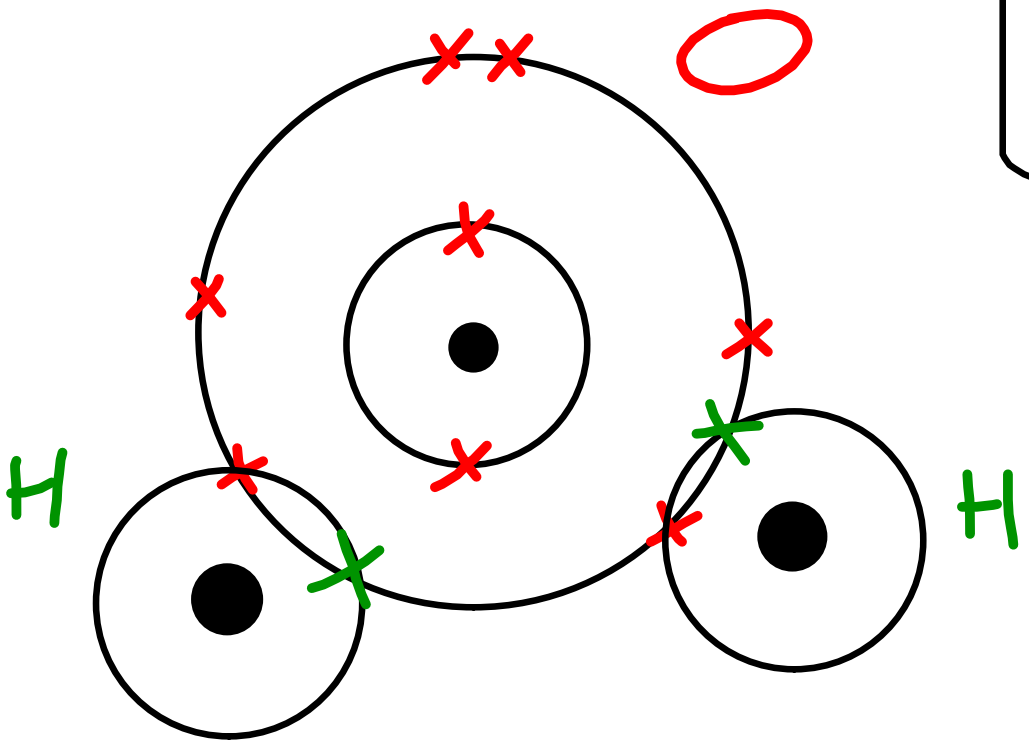


Octet Rule - when bonding occurs atoms try to have **8** electrons in their outer shell.

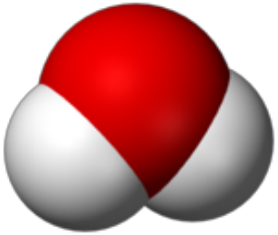
Covalent Bonds

- The atoms 'want' full shells
- They share electrons to get a full shell.

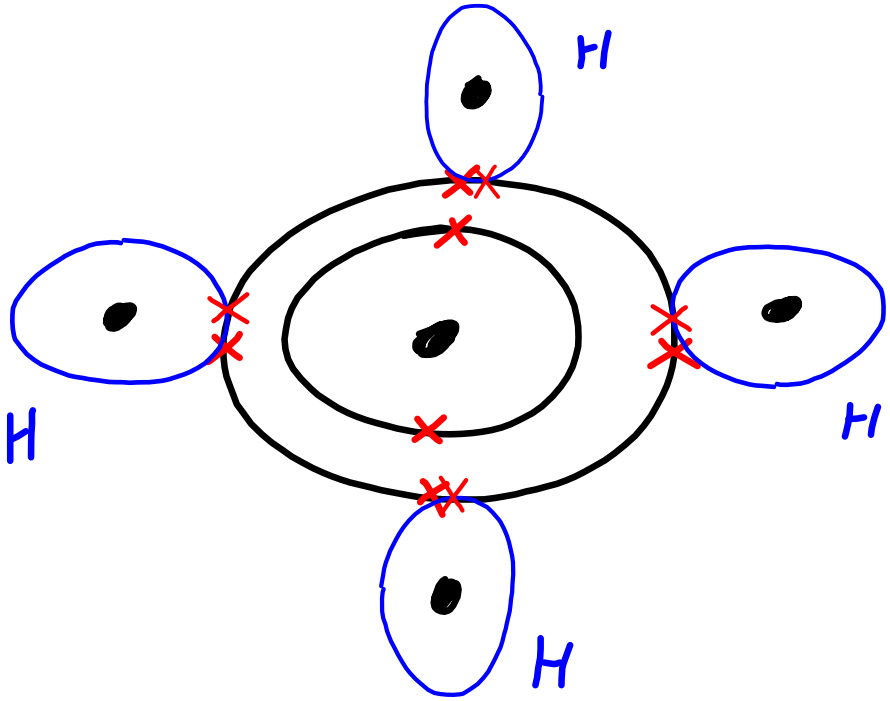
e.g. water



All atoms now have a full outer shell and so water is stable.



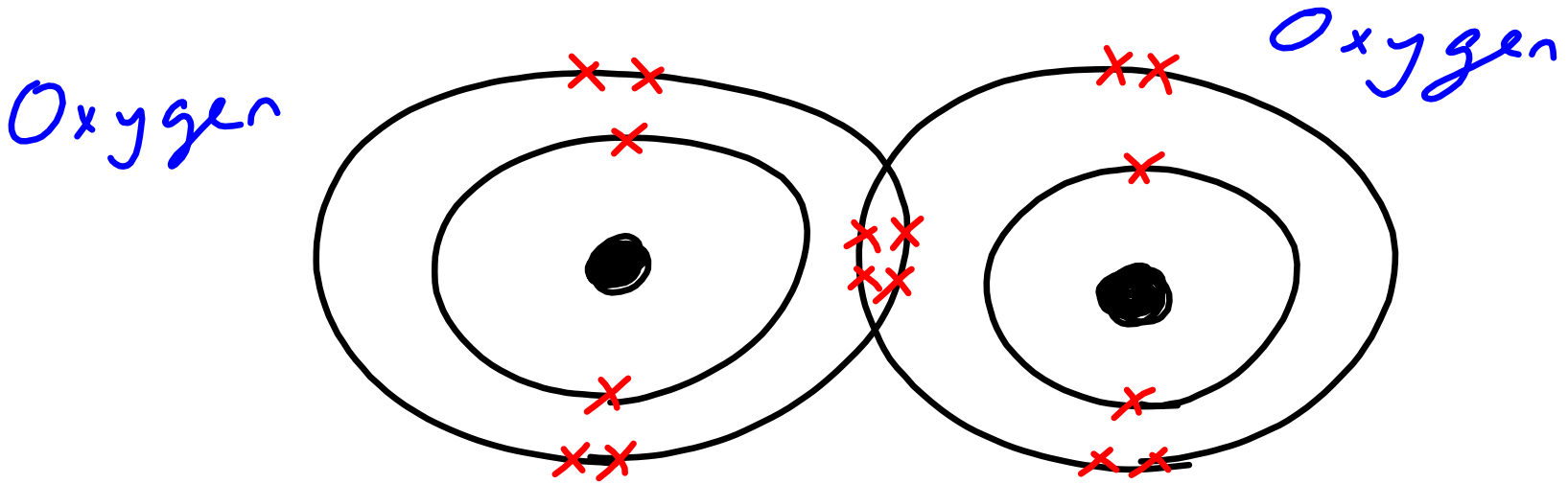
Methane Gas - CH_4



$$CH_4 + 2O_2 \longrightarrow 2H_20 + CO_2$$

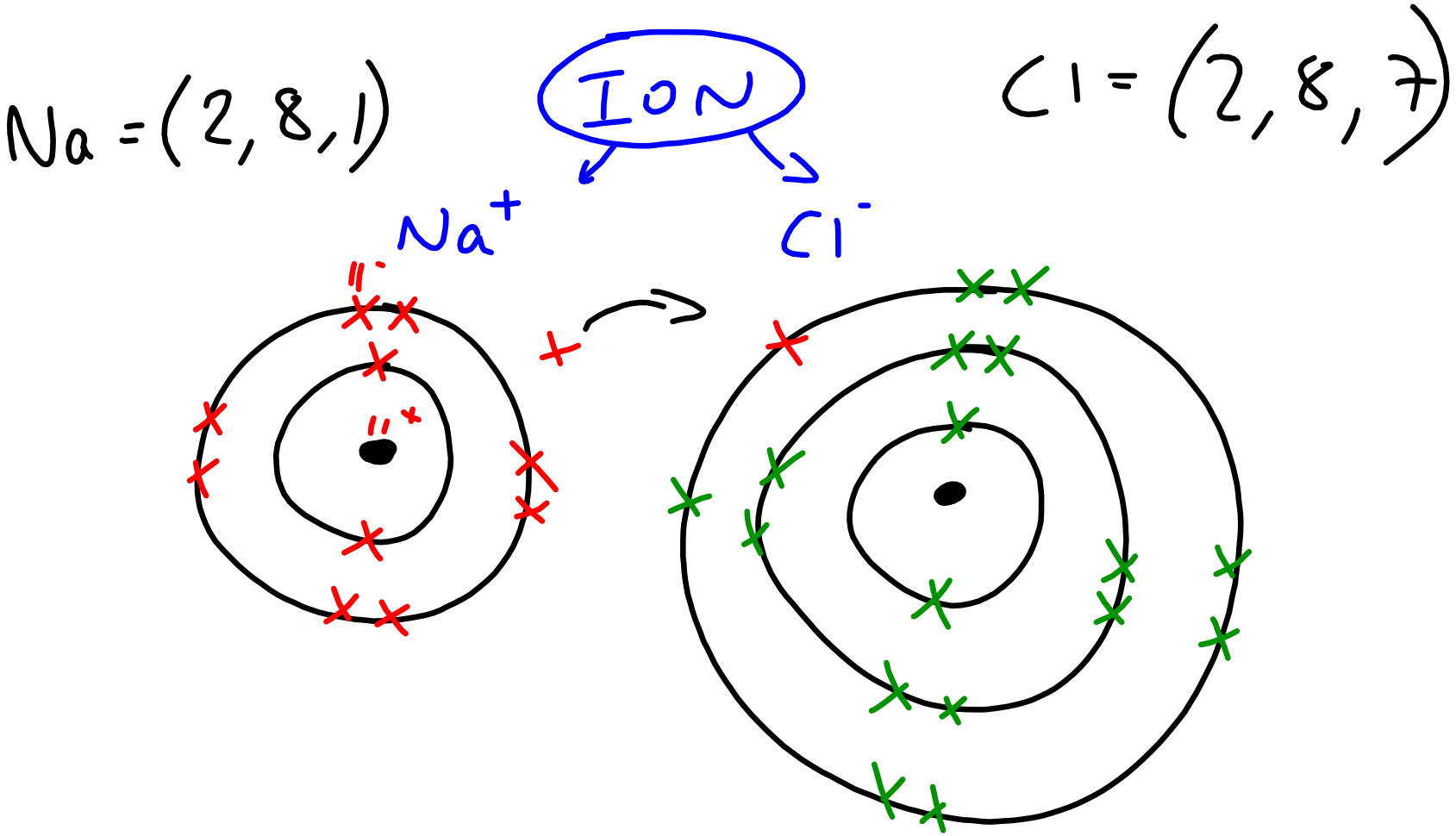
Covalent Double bonds

O_2 – Double bond sharing.
Shares 2 pairs of electrons.



Ionic Bonding

Bonding where 1 atom 'lends' electrons to other atoms.

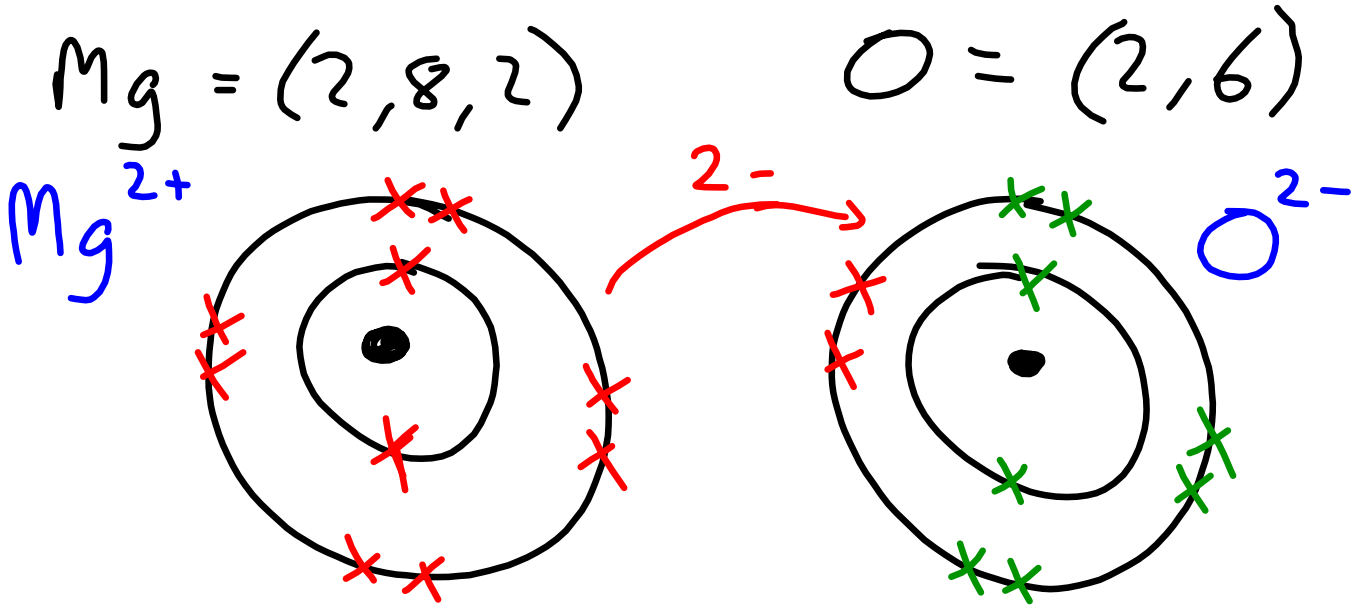


An **ion** is a charged atom or group of atoms

An **ionic bond** is the force of attraction between **positive** and **negative** ions in a compound.

e.g. NaCl (Salt)

Another example is MgO - Magnesium Oxide



Ionic compounds	**Covalent compounds**
+ and - ions	Individual molecules
Solids	Liquid/Gas
Soluble in Water	Insoluble in Water
Conduct Electricity	Do not Conduct Electricity