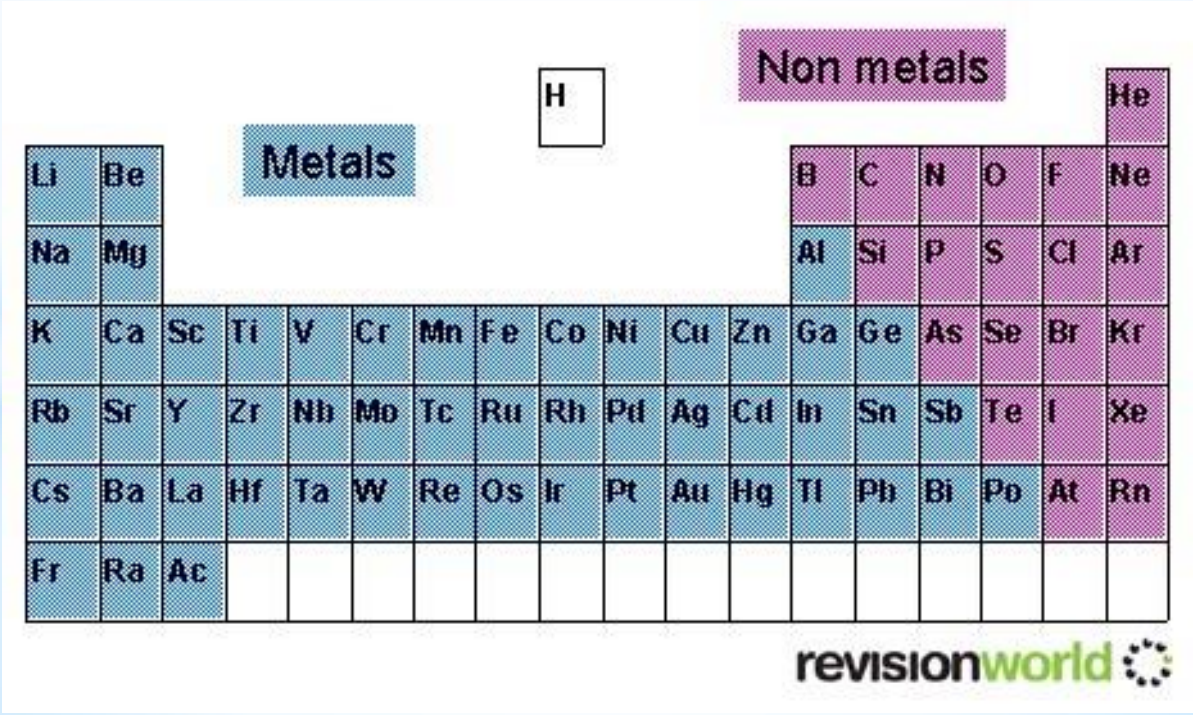
*Covalent Bonding

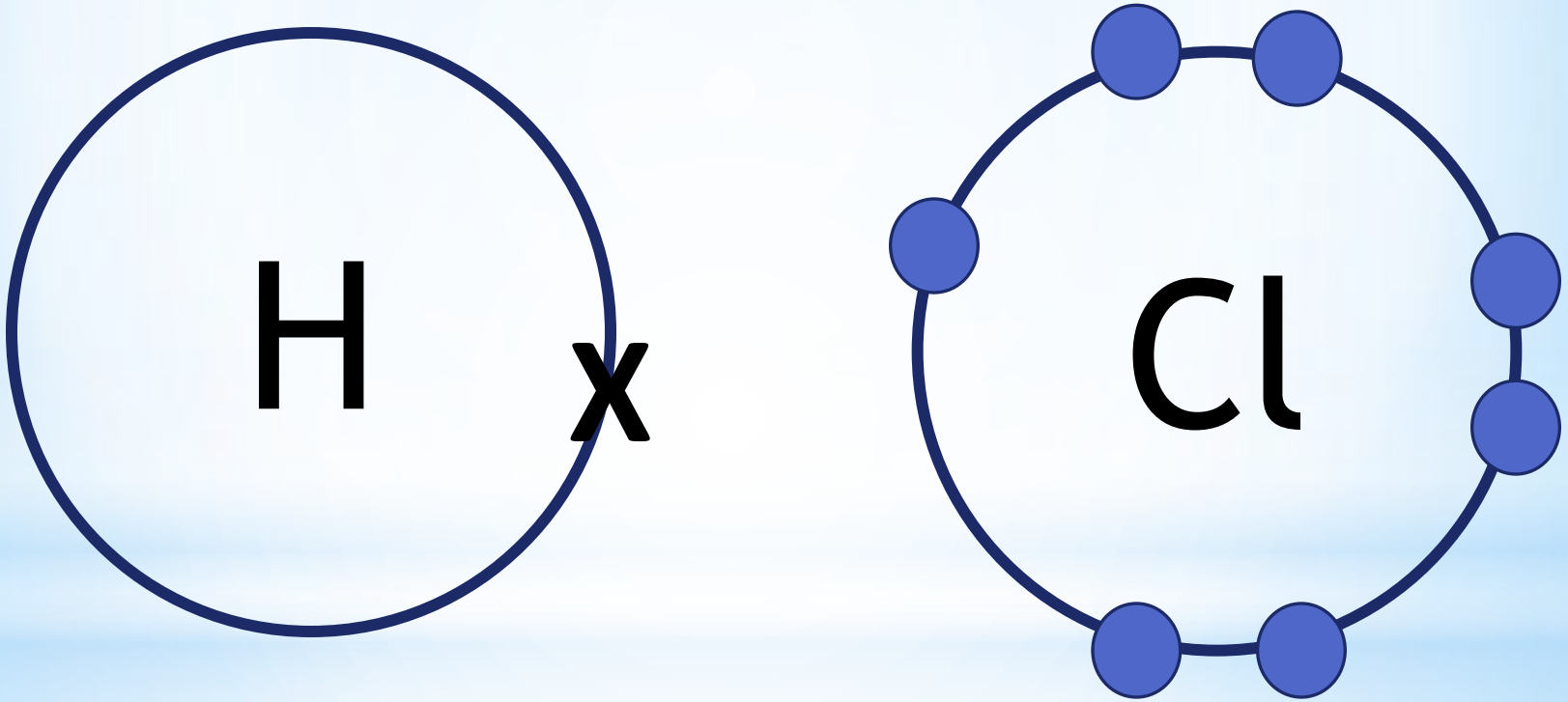
* All atoms want to have a full outer shell.
* Non metals do this by sharing electrons.
* Non metals are on the right hand side of the periodic table.



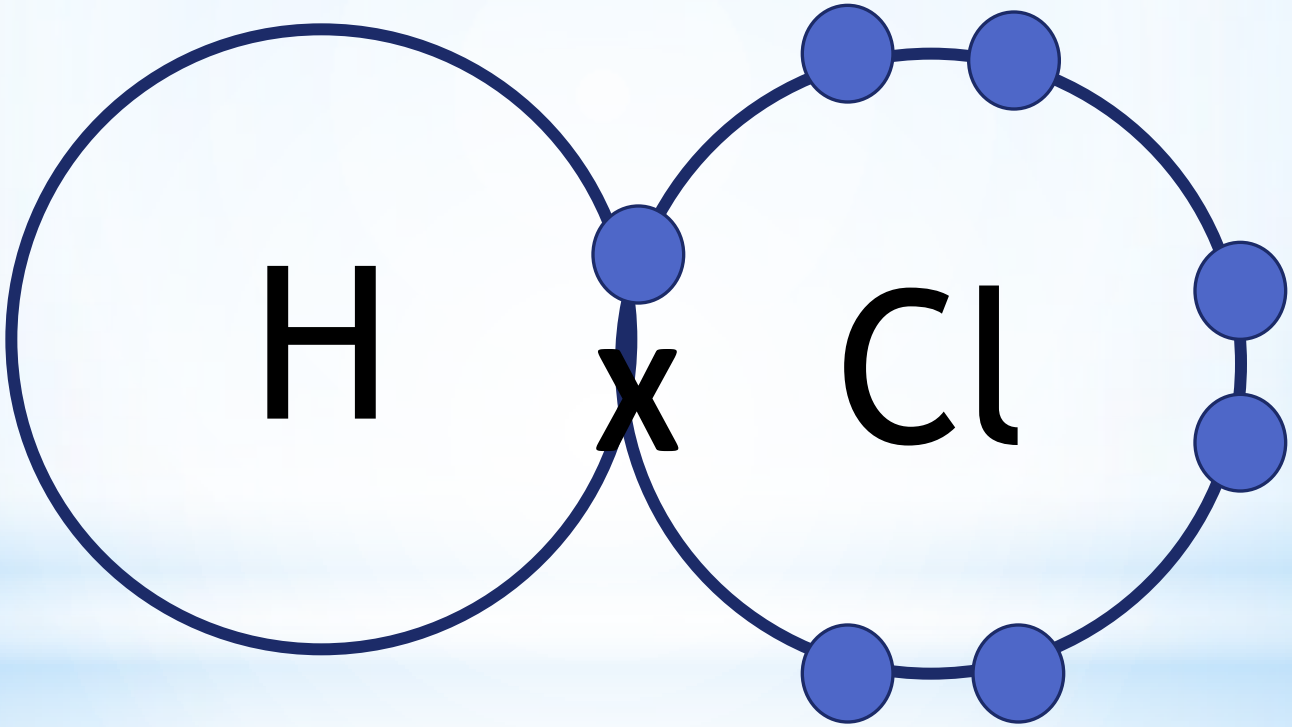
Covalent Bonding

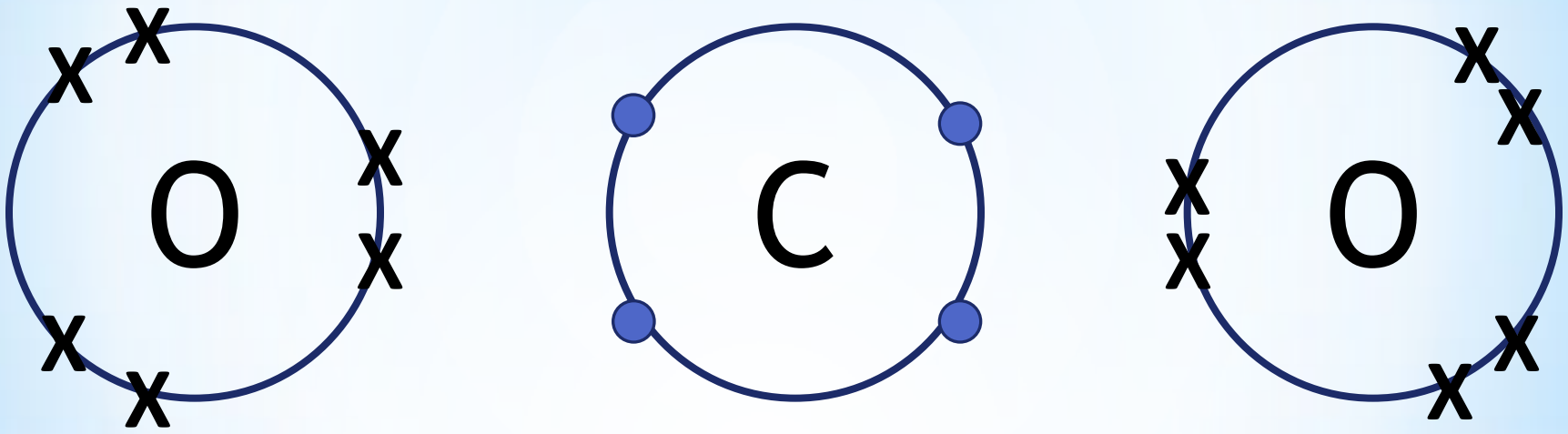
- Sharing electrons is known as covalent bonding.
- We show covalent bonds using dot-cross diagrams.
- The dots show the electrons in one atom and the crosses show the electrons in another atom.

*Example



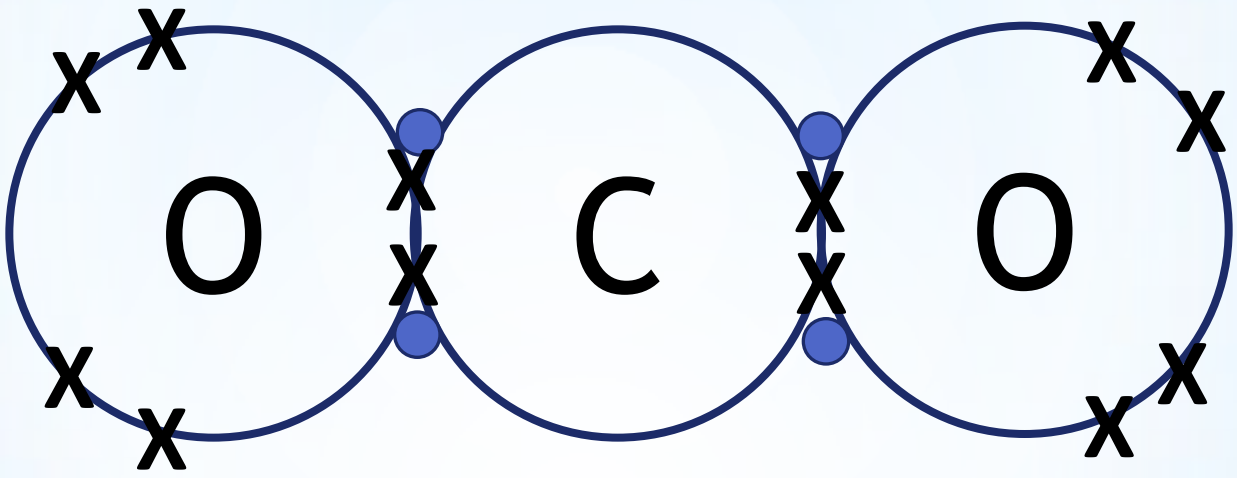
*Example





*Example 2

*Example 2



This is a double bond as each atom shares 2 pairs of electrons to each gain 8 electrons in their outer shell.

Question

- Draw a molecule of water (H_2O)

*Covalent Bonds

- Covalent bonds can also be represented by straight lines.
- For example:

H-Cl

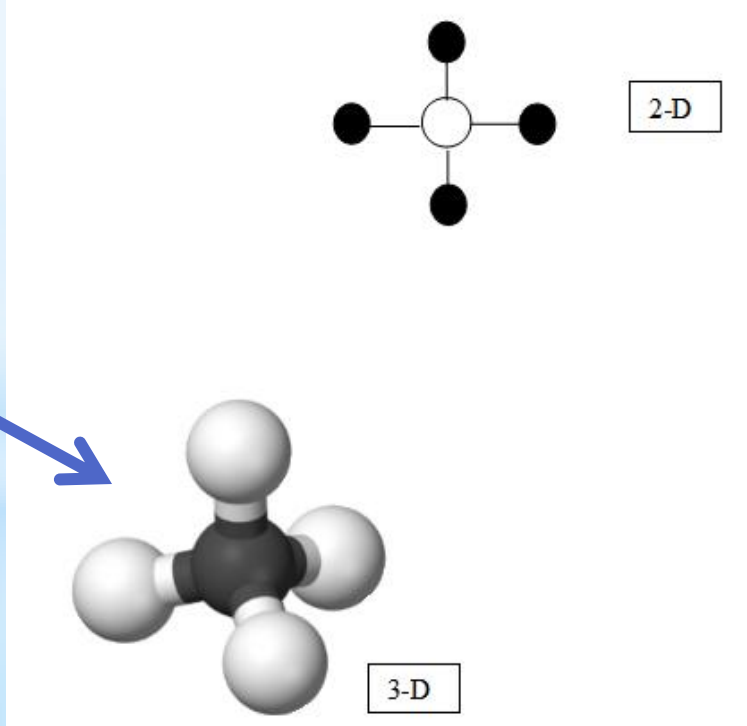
*Double Bonds

- Double bonds can be shown with two lines. For example, oxygen O_2 can be shown as:

O=O

*Covalent Bonds

* Covalent bonds can also be shown by a 3D “ball and stick” model.



Methane

CH_4

*Questions

- Which of these are covalently bonded?

1. NaCl
2. NH_3
3. CaOH
4. H_2O
5. CO

*Questions

- Which of these are covalently bonded?

1. NaCl
2. NH_3
3. CaOH
4. H_2O
5. CO

Remember, covalent bonds form between non-metals.

* Using dot cross-diagrams, draw:
  * NH_3
  * H_2

* **Questions**