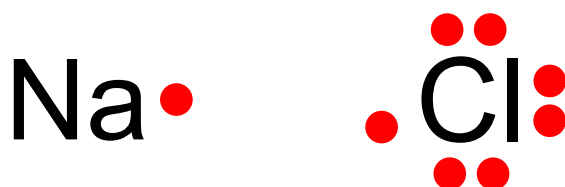


Ionic Bonds and Ionic Compounds

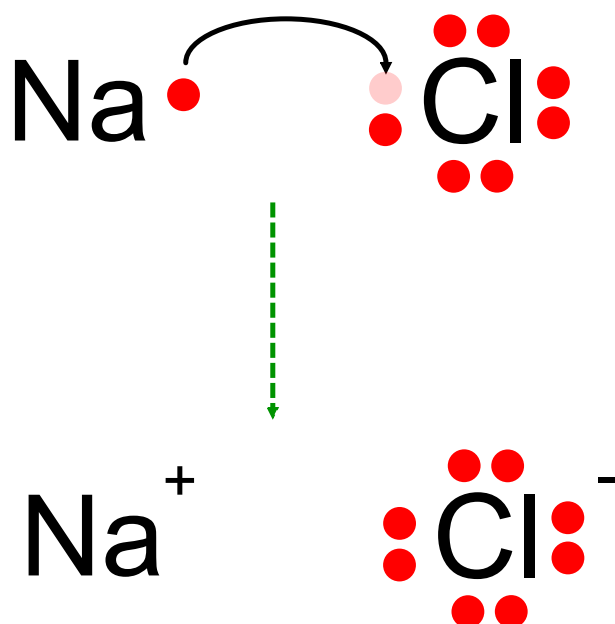
Compounds composed of cations and anions are called **ionic compounds**.

Although they are composed of ions, ionic compounds are electrically neutral.

For example, taking a look at sodium and chlorine



When sodium and chlorine react to form a compound, the sodium atom gives its one valence electron to a chlorine atom.



They combine in a one-to-one ratio and both ions end up with stable octets.

What noble gas would sodium and chlorine now look like?

How would an aluminum atom and a bromine atom combine together to make an ionic compound?

Formula Units

Chemists represent the composition of substances by writing chemical formulas.

A **chemical formula** shows the kinds and numbers of atoms in the smallest representative unit of a substance.

Ex - NaCl is the chemical formula for sodium chloride

The **formula unit** is the lowest whole number ratio of ions in an ionic compound.

Ex - NaCl is in a 1:1 ratio

- MgCl₂ is in a 1:2 ratio

- AlBr₃ is in a 1:3 ratio

Properties of Ionic Compounds

- Most ionic compounds are crystalline solids at room temperature.
- Ionic compounds generally have high melting points
- They can conduct an electric current when melted or dissolved in water.