

Summary Sheet Year 7 Elements



Atoms, molecules, elements and compounds

Atom – the smallest part of an element that can exist

Molecule – a small group of atoms joined together

Element – a pure substance made up from one kind of atom only

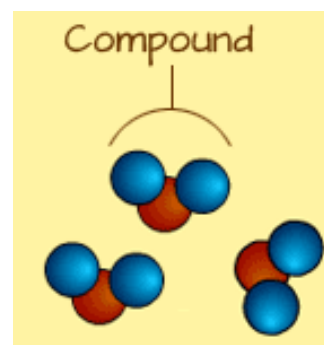
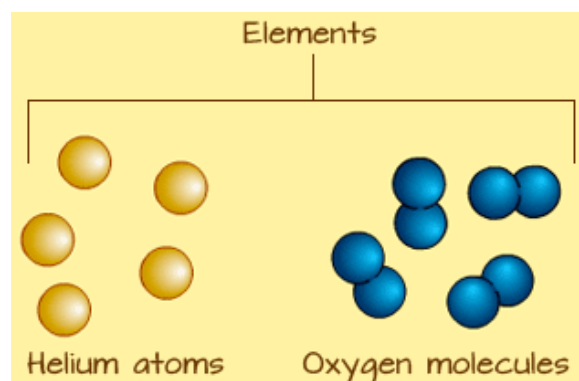
Elements are written with **symbols** of one or two letters
First letter is a capital letter, the second is lower case

Examples: hydrogen (H_2), oxygen (O_2), nitrogen (N_2), carbon (C), iron (Fe), zinc (Zn), copper (Cu), sulfur (S), aluminium (Al), iodine (I_2), bromine (Br_2), chlorine (Cl_2), sodium (Na), potassium (K) and magnesium (Mg)

Compound – a pure substance made from two or more different elements chemically joined together

Examples: hydrogen chloride (HCl), carbon dioxide (CO_2), copper bromide (CuBr_2), zinc iodide (ZnI_2), potassium nitrate (KNO_3), magnesium sulfate (MgSO_4), sodium carbonate (Na_2CO_3)

Mixture – a substance made from two or more different substances NOT chemically joined together



The blue and red represent different atoms.

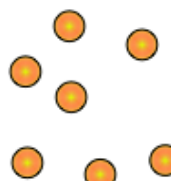
This diagram could show sulfur dioxide molecules (SO_2) or water molecules (H_2O)

Recognising particle diagrams



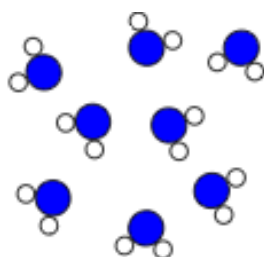
1.

This is an **element** (one kind of atom only) and a **molecule**



2.

This is an **element** (one kind of atom only) and an **atom**



3.

This is a **compound** (2 different kinds of atom) and a **molecule**



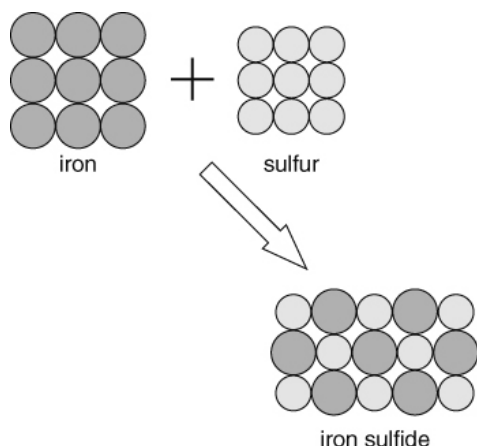
4.

This is a **mixture** of **two different elements**. Both of them are **molecules**

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Compounds are formed when elements react so that the atoms join together.



Naming compounds

If there is a metal in the compound, the name of the metal goes first.

If the compound contains **only two elements** then one of the element's name has its ending changed to 'ide'.

e.g. zinc + oxygen = zinc **oxide**

iron + bromine = iron **bromide**

If a compound contains **two elements plus oxygen**, then the name ending of one of the elements is changed to 'ate'.

e.g. sodium + carbon + oxygen = sodium carbonate

potassium + nitrogen + oxygen = potassium nitrate

Formulae

The formula of a substance shows us how many of each kind of atom it is made up from

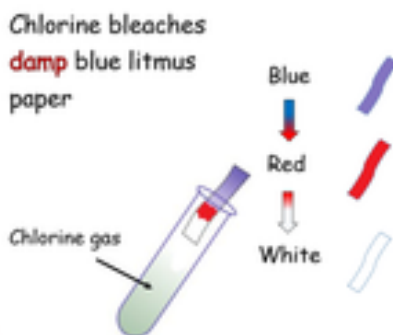
- Examples:
- a) H_2O is made up from 2 hydrogen atoms (H_2) and 1 oxygen atom (O)
 - b) H_2SO_4 is made up from 2 hydrogen atoms (H_2), 1 sulfur (S) and 4 oxygen atoms (O_4)
 - c) K_2NO_3 is made up from 2 potassium atoms (K_2), 1 nitrogen (N) and 3 oxygen atoms (O_3)

Testing for Common Gases

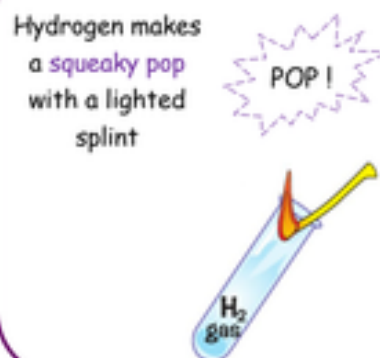
Carbon Dioxide, CO_2



Chlorine, Cl_2



Hydrogen, H_2



Oxygen, O_2

