Atoms (elements)

The smallest particles of ordinary matter.

- Atomic symbol = a one or two letter abbreviation for each of the types of atoms

Figs 2.2 and 2.4

Element	Symbol
Carbon	C
Hydrogen	H
Oxygen	O
Nitrogen	N
Calcium	Ca
Phosphorus	P
Sodium	Na
Potassium	K
Chlorine	Cl
Sulfur	S
Iron	Fe
Magnesium	Mg

Fig 2.2

Molecule (compound)

A particle made out of atoms joined together

• Covalent bond = the "glue" that joins atoms together in molecules

√ Covalent bonds are shown as a line

√ Example molecules:

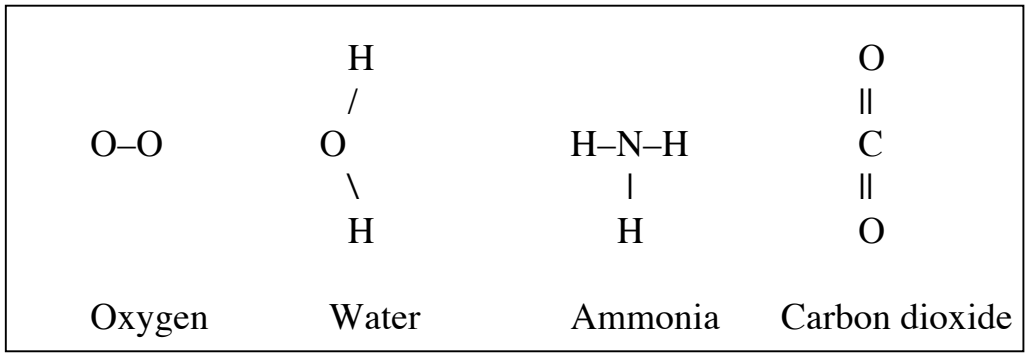

Fig 2.10c

Molecular formula

A way to write a molecule

• All the atomic symbols of the atoms in the molecule are written together, with small numbers to show how many of each atom there are:

Example: H_2O = a molecule of water. It is made of two hydrogen atoms and one oxygen atom

• A large number in front of the molecular formula shows how many molecules are present:

Example: $3H_2O$ = Three water molecules

Ion (electrolyte, salt)

An electrically charged atom or molecule

- The type of charge (positive or negative) and the amount of charge are shown above each ion

√ Examples:

Na^+	K^+	Mg^{2+}	Ca^{2+}	Cl^-

- Molecule ions have special names:

HCO_3^-	= bicarbonate ion
PO_4^{3-}	= phosphate ion (or Ⓟ)
OH^-	= hydroxide ion

Fig 2.8; Tables 24.6 and 26.1

Chemical reaction

When molecules are changed (atoms added or atoms removed from molecules)

- Chemical reactions are written in this way:

  a) All the reactants (old molecules) are written on the left

  b) An arrow is written in the middle

  c) All the products (new molecules) are written on the right.

- Example: $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$

Metabolism

All the chemical reactions in the body

- There are thousands of metabolic reactions taking place in the body at all times