**Basic Chemistry** (chapter 2)

Atoms (elements)

The smallest particles of ordinary matter.

• Atomic symbol = a one or two letter abbreviation for each of the

 types of atoms

Table 2.1

 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

Table 2.1

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:

 H O

 / ||

 O–O O H–N–H C

 \ | ||

 H H O

 Oxygen Water Ammonia Carbon dioxide

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: H2O = 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: 3H2O = Three water molecules

Figure 2.8

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+ Mg2+ Ca2+ Cl-

 • Molecule ions have special names:

 HCO3- = bicarbonate ion

 PO43- = phosphate ion (or P )

 OH- = hydroxide ion

Table 2.4

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: C6H12O6 + 6O2 -> 6CO2 + 6H2O

Metabolism

 All the chemical reactions in the body

 • There are thousands of metabolic reactions taking place in the body

 at all times