**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