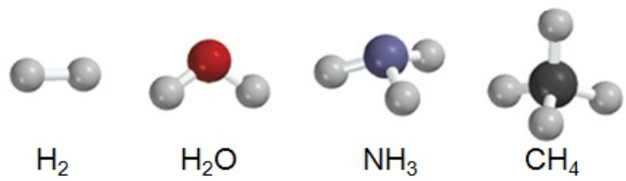
Science 9

Unit 2: Chemical Reactions

Worksheet 11: Molecules and Compounds

International Union of Pure and Applied Chemistry (IUPAC) is an organization that has determined a set of rules to be used for naming chemicals.

Molecule is made of two or more atoms in a definite arrangement held together by chemical bonds.



H_2 H_2O NH_3 CH_4

Diatomic Molecule contains only two atoms

Examples: H_2, N_2, O_2, Br_2, HCl, CO

Polyatomic Molecule contains more than two atoms

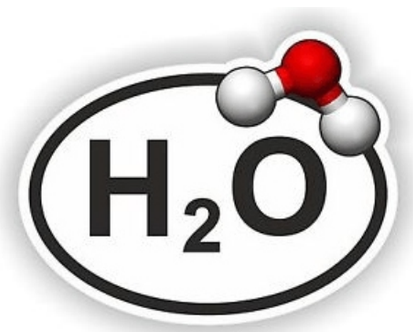
Examples :O_3, H_2O, NH_3, CH_4

Molecular Element - if the atoms are all the same . For example, oxygen gas is a molecule composed of two atoms of oxygen. Since there are two atoms the molecule is called a **diatomic molecule**. (just remember the gen's)

oxygen		O_2
hydrogen		H_2
nitrogen		N_2
The Halogens (group 17)	fluorine	F_2
	chlorine	Cl_2
	bromine	Br_2
	iodine	I_2

Compound - a molecule that contains two or more different types of atoms or ions. It consist of two or more elements bonded together and has different chemical properties than the original element that was used.

Compounds are represented by chemical formula: For Example, The formula for water (H_2O) is a combination of symbols and subscripts.



- H and O are the symbols for the two types of elements (Hydrogen and Oxygen) found in water.
- The 2 is called a subscript, representing the number of atoms present.
- Note, there is an invisible 1 by the oxygen

Instructions: For each of the following questions, count the total number of each type of atom that is present in the formula.

Fe_2O_3 **Atom:** **# of Atoms** Fe 2 O 3	Br_2 **Atom:** **# of Atoms**	NaCl **Atom:** **# of Atoms**
Li_3P **Atom:** **# of Atoms**	Be_3N_2 **Atom:** **# of Atoms**	KNO_3 **Atom:** **# of Atoms**
$Li_2S_2O_3$ **Atom:** **# of Atoms**	H_2O **Atom:** **# of Atoms**	H_2O_2 **Atom:** **# of Atoms**
$C_{12}H_{22}O_{11}$ **Atom:** **# of Atoms**	NH_3 **Atom:** **# of Atoms**	$CaCO_3$ **Atom:** **# of Atoms**