

## Elements and Compounds

### Molecule

- A molecule is composed of a cluster of atoms and can be broken down into those atoms during a chemical reaction.

## Element

- An element is a pure substance whose molecules are made up of identical atoms.

## Compound

- A Compound is a pure substance whose molecules are made of different kinds of atoms.
- Compounds can be broken down into elements.

## Chemical Formula

- A chemical formula is the combination of chemical symbols that indicate what elements make up the compound and the number of atoms of each element present.

## Examples

- Chemical formula:  $\text{H}_2\text{O}$ 
  - H = hydrogen
    - There are 2 hydrogen atoms
  - O = oxygen
    - There is 1 oxygen atom (no number means there is one)

- $\text{HNO}_3$ 
  - 1 Hydrogen
  - 1 Nitrogen
  - 3 Oxygen
- $\text{Na}_2\text{SO}_4$ 
  - 2 Sodium
  - 1 Sulfur
  - 4 Oxygen