Comparing Compounds and Mixtures

Definition

Compound

- Two or more elements **chemically** combined

Water

Mixture

- Two or more substances **mingled**, but *NOT* chemically combined

Nuts

Properties

Compound

- properties of the elements that compose a compound are not retained
  - Water
    - ✓ hydrogen is explosive
    - ✓ oxygen supports combustion
    - ✓ water puts out fires
  - table salt
    - ✓ sodium - extremely reactive, caustic
    - ✓ chlorine - extremely reactive, corrosive, toxic
    - ✓ salt - eaten with food

Mixture

- each substance in a mixture retains its own properties
  - sugar and water - sweet and wet
  - brine (salt water) - salty liquid

Separation

Compound

- Can be broken down into simpler substances (elements) by chemical means
  - water (H_2O) → hydrogen and oxygen
  - rust (Fe_2O_3) → iron and oxygen
  - ammonia (NH_3) → nitrogen and hydrogen
  - table salt (NaCl) → sodium and chlorine

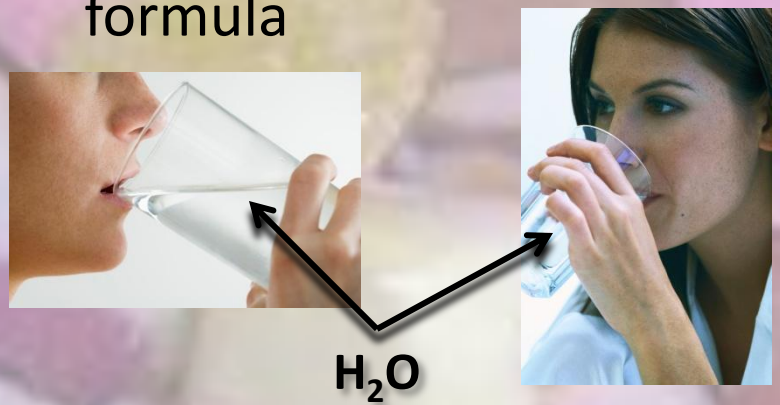
Mixture

- can be separated by physical means
  - iron and sand - can be separated with a magnet
    - ✓ iron is attracted by a magnet
    - ✓ sand is not attracted by a magnet
  - water and sand - can be separated with filter paper
    - ✓ water can pass through pores in filter paper
    - ✓ sand cannot pass through filter paper

Composition

Compound

- Constant composition - uniform throughout or homogeneous
- Consist of more than one type of atom, but in a fixed ratio as shown by the formula



Mixture

- the composition is variable (not constant)