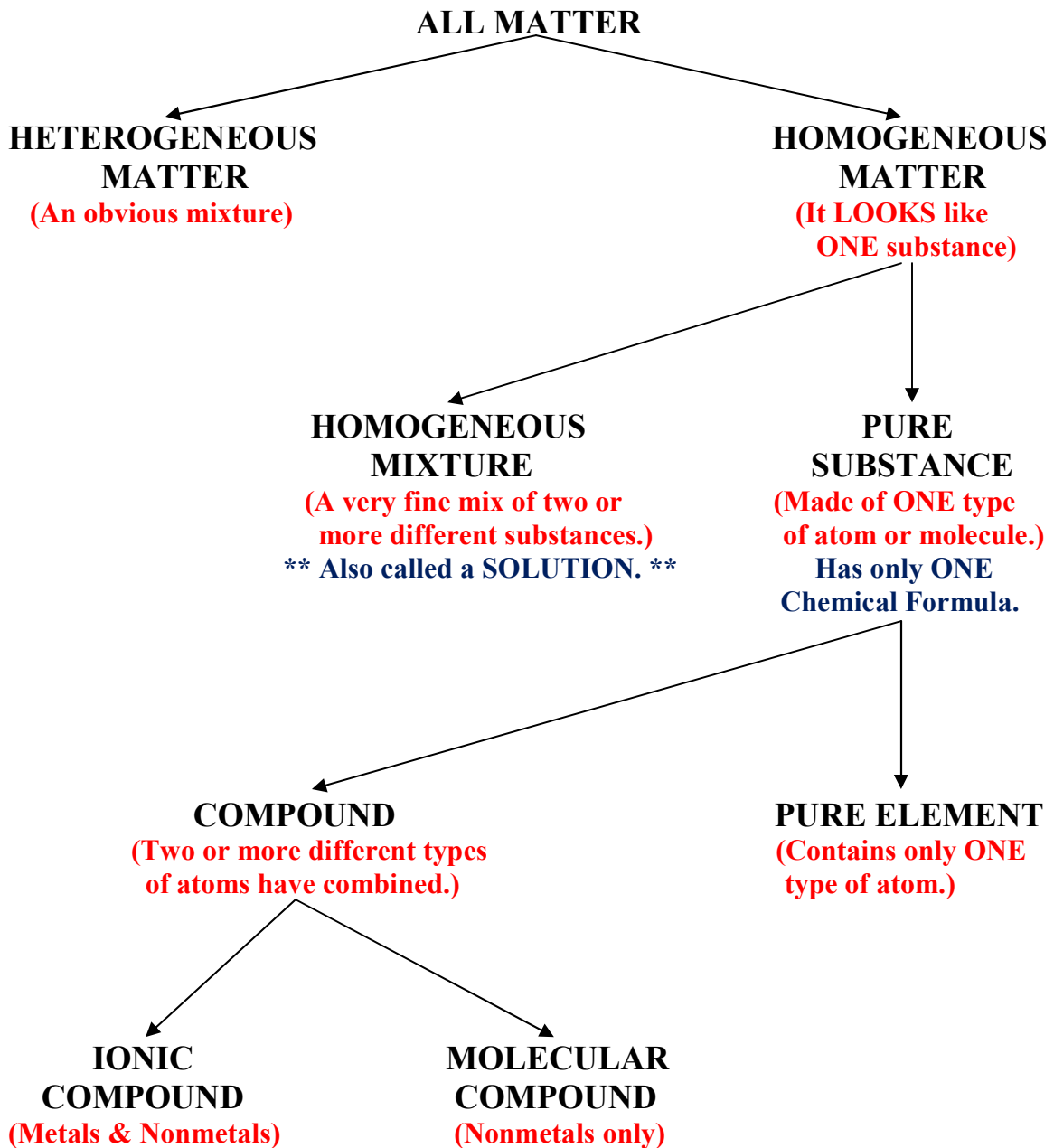


UNIT #3 - ELEMENTS, COMPOUNDS & MIXTURES

SECTION 1: THE CLASSIFICATION OF MATTER (continued)

CLASSIFICATION CHART FOR MATTER



Heterogeneous Matter - An obvious mixture.

Three examples: muddy water, a rock that has many colours, and soil.

These mixtures are sometimes referred to as **Suspensions** or **Mechanical Mixtures**.

Homogeneous Mixture - It looks like one substance, but is actually a fine mixture of two or more different substances.

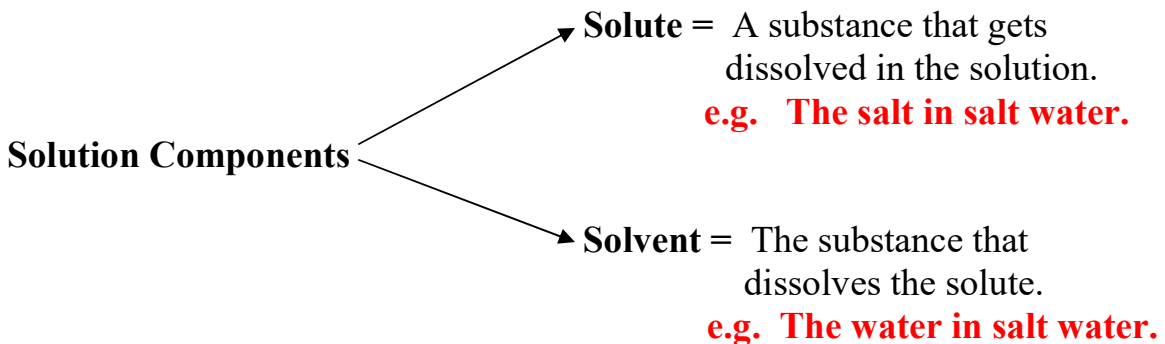
For example, salt water. Salt water looks like one substance but it is actually a mix of two different substances - salt (NaCl) and water (H₂O).

Each of these substances has its own unique chemical formula. They have different chemical properties. Pure salt looks completely different from pure water.

Solution = Homogeneous Mixture.

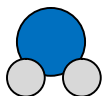
Solutions can come in any phase. Air is an example of a gaseous solution. It is a mixture of Nitrogen, Oxygen, Carbon Dioxide and other gases.

Alloys are solutions of metals. The Bronze Age is named after a solid solution of Copper and Tin.



Pure Substance - A substance that is made of only one basic particle. In other words, it consists of one type of atom or one type of molecule. Therefore, it only has one chemical formula. This formula **never** changes.

Water is an example. Its chemical formula is always H_2O . It is only made of H_2O molecules.



This gives water constant, unchanging properties which include:

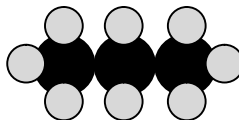
1. At normal atmospheric pressure it always boils at $100\text{ }^{\circ}\text{C}$.
2. It always freezes at $0\text{ }^{\circ}\text{C}$.
3. Liquid water always has a density of 1.0 g/mL .

Change the water molecule and you will get a different substance; a substance with completely different properties.

Compound - A pure substance that contains more than one type of atom.

e.g. Propane = C_3H_8

Propane molecules all contain 3 atoms of carbon and 8 atoms of hydrogen.



Pure Element - A pure substance that contains only **one** type of atom.

e.g. Pure Oxygen = O_2

