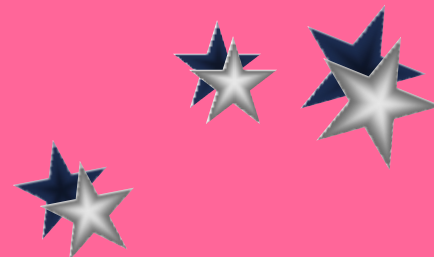




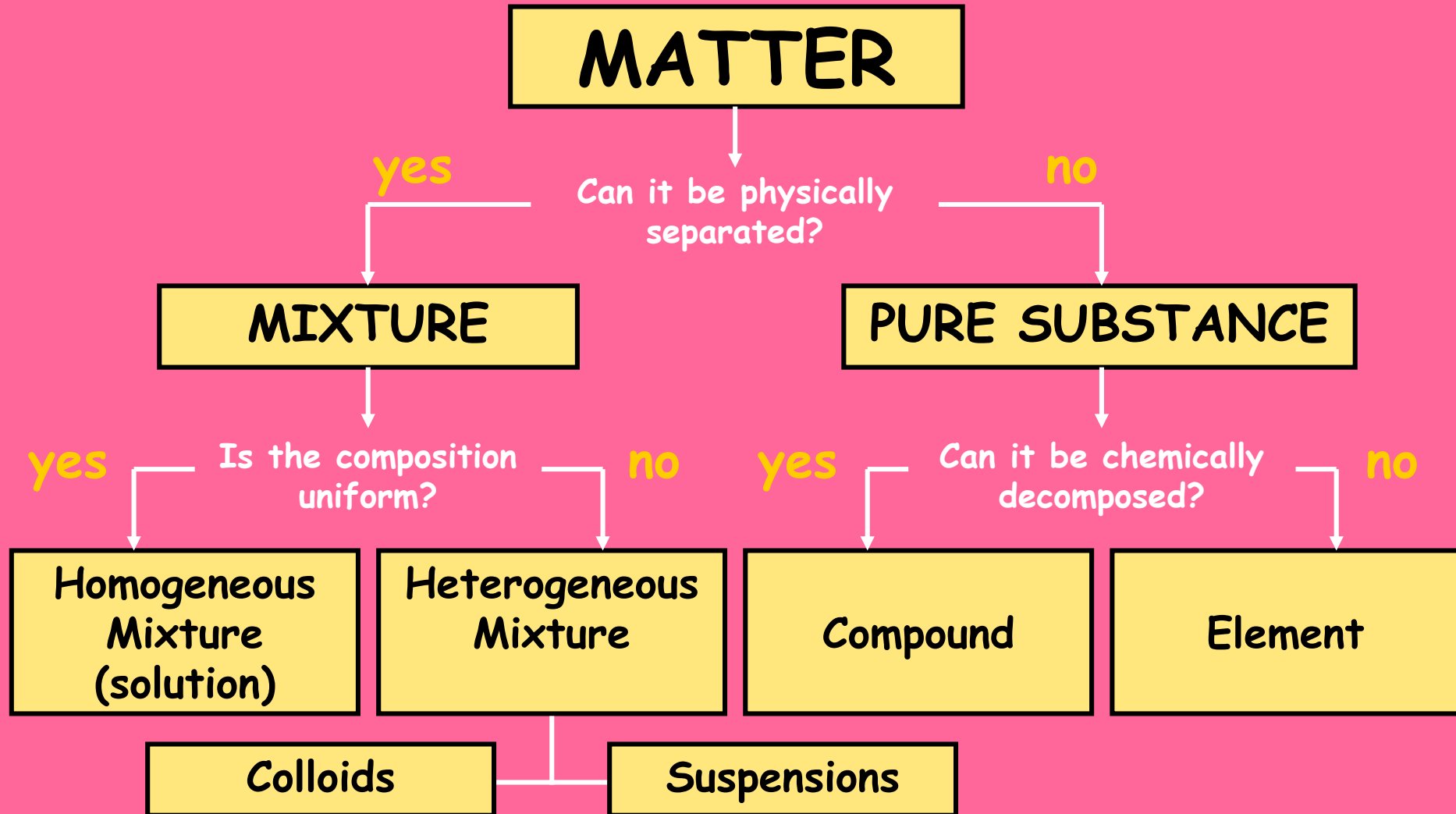
Unit 1 - Matter

II. Classification of Matter (p.15-17, Modern Chemistry)

- ◆ Matter Flowchart
- ◆ Pure Substances
- ◆ Mixtures



A. Matter Flowchart



A. Matter Flowchart

✦ Examples:

◆ graphite

element

◆ pepper

hetero. mixture

◆ sugar(sucrose)

compound

◆ paint

hetero. mixture

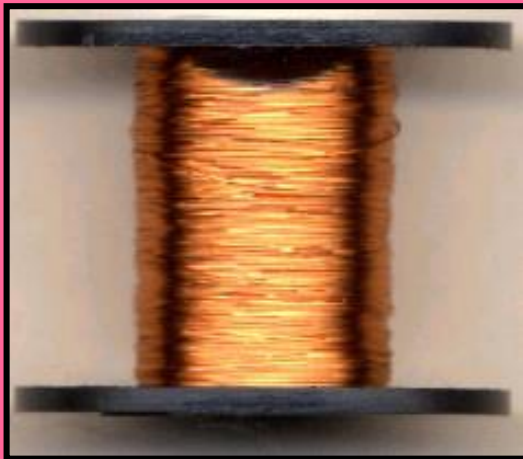
◆ soda

solution

B. Pure Substances

✦ Element

- ✦ composed of one type of atom
- ✦ EX: copper wire, aluminum foil



B. Pure Substances

✦ Compound

- ✦ composed of 2 or more elements in a fixed ratio
- ✦ properties differ from those of individual elements
- ✦ EX: table salt (NaCl)



B. Pure Substances

✦ Law of Definite Composition

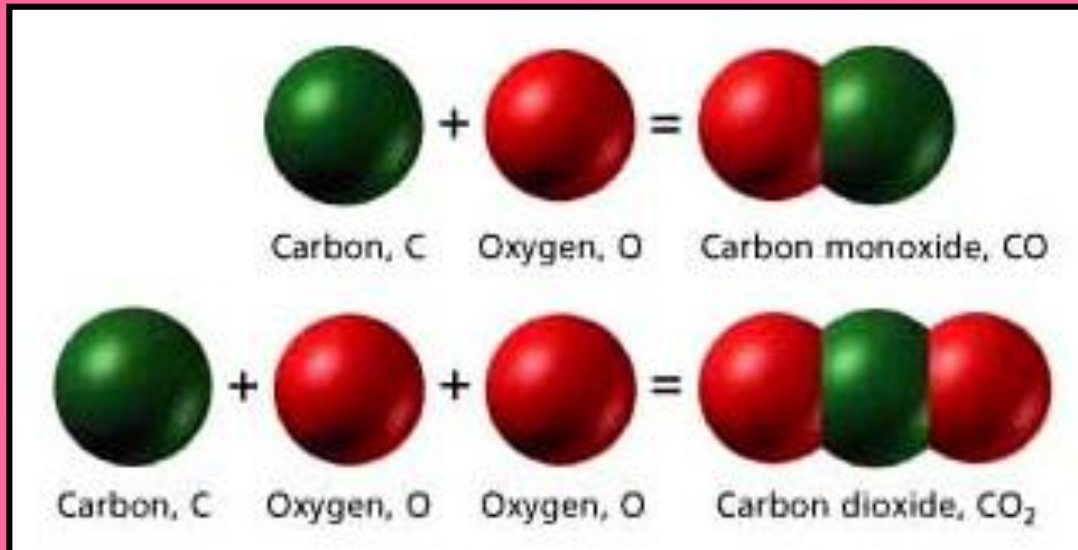
- ◆ A given compound always contains the same, fixed ratio of elements.

✦ Law of Multiple Proportions

- ◆ Elements can combine in different ratios to form different compounds.

B. Pure Substances

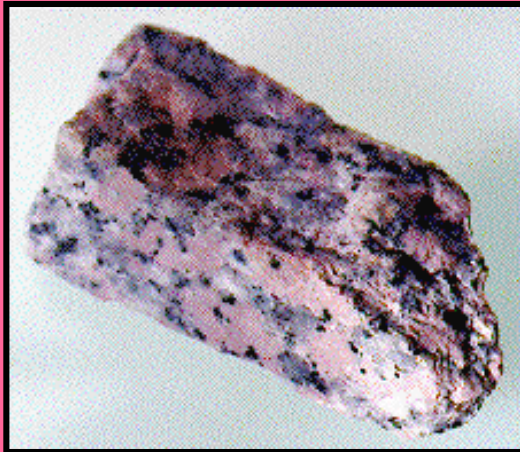
✦ For example...



Two different compounds,
each has a definite composition.

C. Mixtures

- ✦ Variable combination of 2 or more pure substances.



Heterogeneous



Homogeneous

C. Mixtures

✦ Solution

- ◆ homogeneous
- ◆ very small particles
- ◆ no Tyndall effect
- ◆ particles don't settle
- ◆ EX: rubbing alcohol



Tyndall Effect



C. Mixtures

✦ Colloid

- ◆ heterogeneous
- ◆ medium-sized particles
- ◆ Tyndall effect
- ◆ particles don't settle
- ◆ EX: milk



C. Mixtures

✦ Suspension

- ◆ heterogeneous
- ◆ large particles
- ◆ Tyndall effect
- ◆ particles settle
- ◆ EX: fresh-squeezed lemonade



C. Mixtures

✦ Examples:

- | | |
|--------------------------|------------|
| ◆ mayonnaise | colloid |
| ◆ muddy water | suspension |
| ◆ fog | colloid |
| ◆ saltwater | solution |
| ◆ Italian salad dressing | suspension |

Pure substances



elements



compounds



Mixtures



homogeneous



heterogeneous

States of Matter



gas



liquid



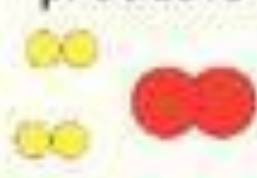
solid

Chemical change

reactants



products



Physical change

solid



liquid





End Notes Here



Separating Mixtures

✦ Pre-lab

- ✦ Safety Cautions – Heating Safety

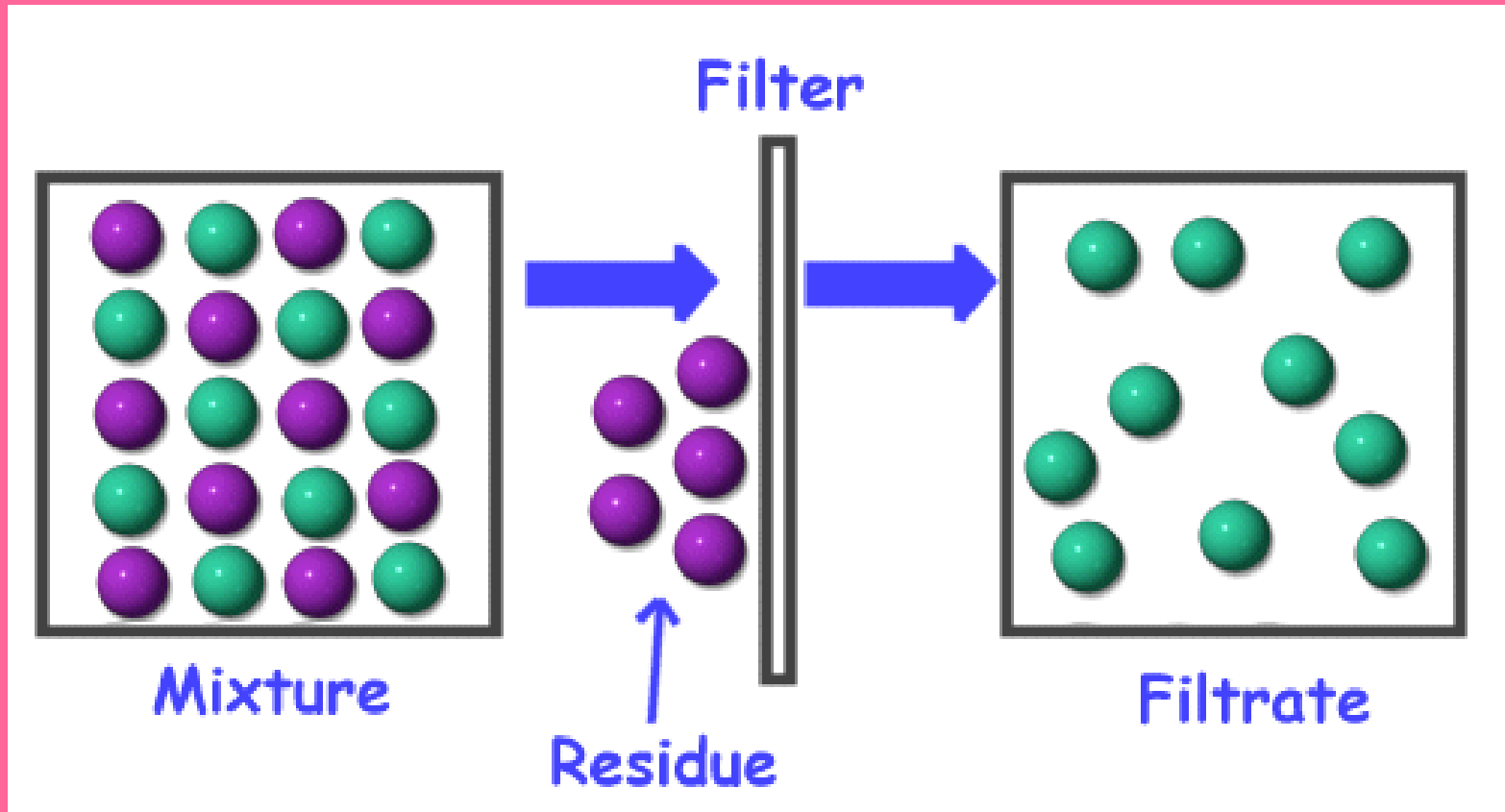


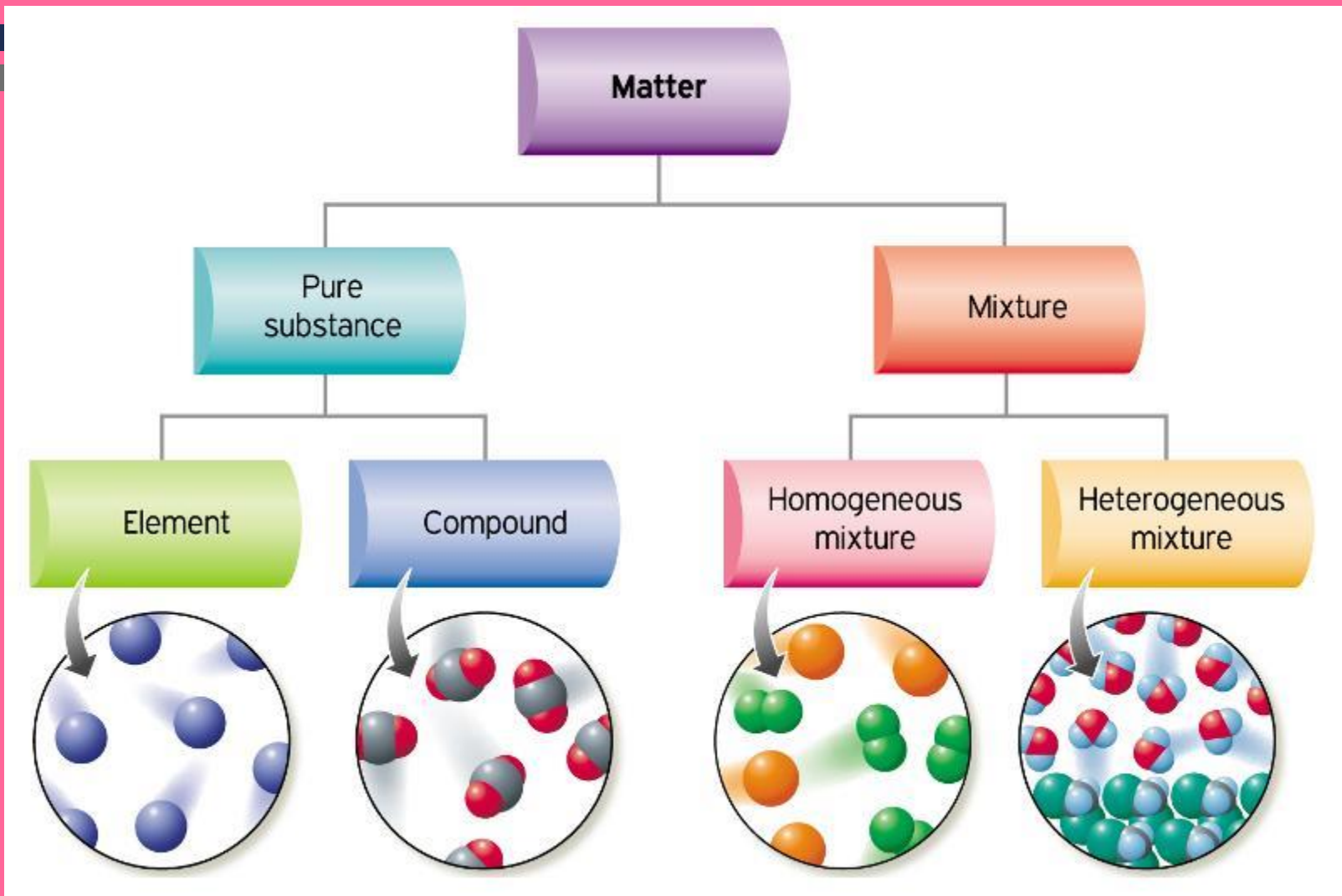
How to Light the Lab Burner

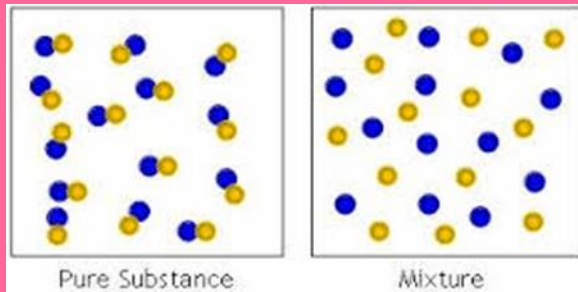
1. Examine the hose for any damage.
2. Perform initial adjustments.
3. Attach rubber hose to outlet.
4. Light the match.

5. Turn ON gas outlet.
6. Carefully bring the match to the top of the burner.
7. Perform any required final adjustments.

Procedures







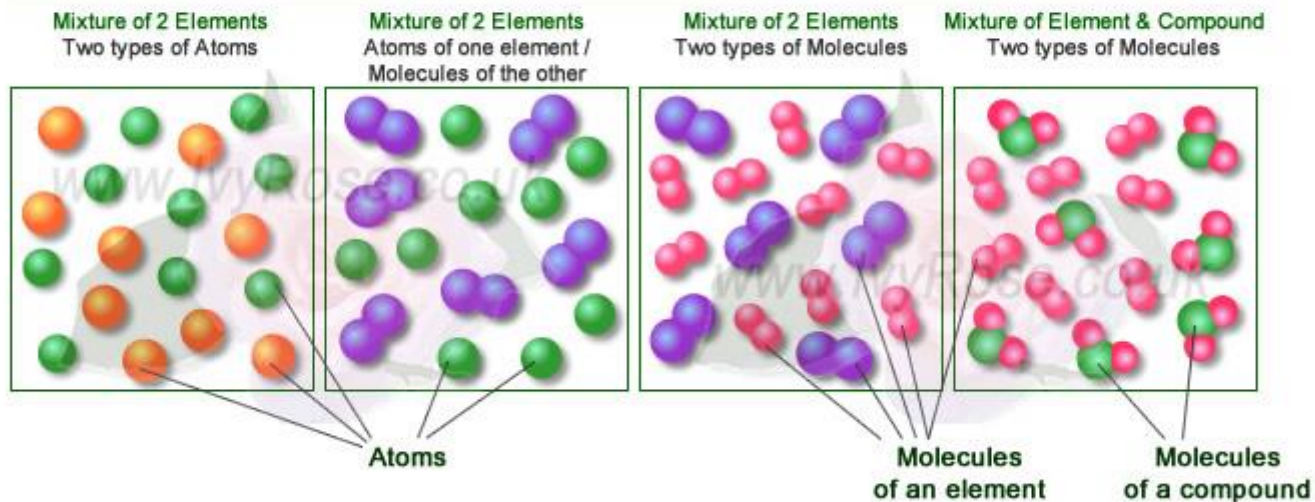
Mixtures

Atoms are represented by single spheres.
Spheres of the same size and colour represent atoms of the same element.

Molecules are represented by two or more spheres joined together.

Molecules of Elements are represented by two or more spheres of the same size and colour joined together.

Molecules of Compounds are represented by two or more spheres of different sizes and colours joined together.



<http://www.ivy-rose.co.uk/Chemistry/GCSE/What-is-a-mixture.php> Illustration (c) IvyRose Ltd., 2011.