Mixtures

- Two or more substances combined \textit{physically NOT chemically}
- No chemical change occurs in a mixture
- Mixtures do NOT have a definite ratio
- Ways to separate mixtures: distillation, a centrifuge, a magnet, etc.
Solutions

- Mixture that looks like just one substance
- Made of two or more substances that look like one
- Looks the same throughout
- **Solute** – substance that is dissolved
- **Solvent** – what it is dissolved in
- Ex: salt water
Examples of Solutions

- Gas in gas $\rightarrow$ Dry air (oxygen in nitrogen)
- Gas in liquid $\rightarrow$ Cokes, etc. (carbonation)
- Liquid in liquid $\rightarrow$ Antifreeze
- Solid in liquid $\rightarrow$ Salt water
- Solid in solid $\rightarrow$ brass
Particles in Solutions

- Are teeny, teeny, tiny
- Do not settle out
- Cannot be filtered out
Concentration of Solution

- **Concentration** – amount of solute dissolved in a solvent
  - Expressed in grams per milliliter (g/mL)
- **Concentrated** – more solute per solvent
- **Dilute** – less solute per solvent
Solubility

- Ability of a solute to dissolve into a solvent at a certain temperature
- OR how much solid can dissolve into a liquid
Dissolving in Liquids

- Gases are more soluble in liquids at lower temperatures
  - Ex: Coke will “get flat” faster at warm temperatures

- Solids are more soluble at higher temperatures
  - Ex: Lemonade dissolves faster at warmer temperatures
Suspensions

- A *mixture* in which particles are dispersed through a liquid or gas, but are large enough to settle out
  - Ex: a snow globe
- Can be separated by using a filter
Colloids

- A *mixture* in which particles are suspended but are not heavy enough to settle out
  - Ex: milk, mayonnaise, jello, etc.
- Can not be separated through a filter