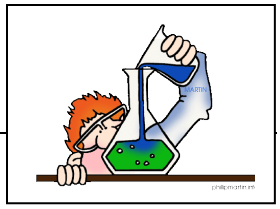
Week 17 – SCIENCE NOTE PAGE
Mixtures



Review:

- ***Element:*** is a substance that **cannot** be broken down or separated into a simpler substance
- ***Compound:*** is a substance made up of two or more elements that can only be separated by **breaking chemical bonds**

Mixtures

- **Mixture:** a combination of two or more substances that do not change _____ when mixed
  - made of elements and/or compounds
  - can be solids, liquids or gases
  - are separated by _____ means
  - Examples:
    - Salt (compound) + Water (compound) = Salt water
    - Nitrogen, Oxygen, Argon, Water vapor, Carbon Dioxide = the Atmosphere

Properties of Mixtures

- A mixture has three (3) main properties that make it different from a compound
  1. **The components of a mixture _____ their unique properties and identities**
  2. **The components are _____ in fixed ratios**
  3. **The components of a mixture _____ be separated physically**

Types of Mixtures

- **Heterogeneous Mixture:** a mixture that has components spread _____ throughout the mixture
  - GREEK: Heteros- means **DIFFERENT** … –genos means KIND
  - **Not uniform** in appearance
  - Each part of a the mixture contains a combination of different ingredients in different ratios
  - Examples: tossed salad, trail mix, fruit salad

- **Homogeneous Mixture:** a mixture that has components spread _____ throughout
  - GREEK: Homo- means **SAME** … –genos means KIND
  - **Uniform** in appearance
  - Each part of the mixture contains a combination of different ingredients in the same ratios
  - Examples: sugar water, juice, air, carbonated drinks

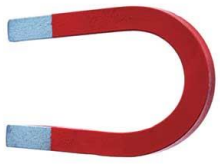
- **Solution:** a mixture with one or more of the substances _____ in another
  - A type of homogeneous mixture
  - Example: sugar water, Kool-Aid

Remember!

A mixture CAN be separated into its parts <u>without</u> a chemical reaction occurring!

Mixtures can be PHYSICALLY separated!

Ways a Mixture CAN be Separated:

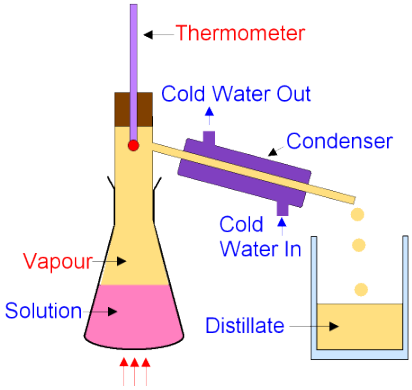


1. **Separating with a magnet**
   - Example: separate iron fillings from aluminum by using a _____

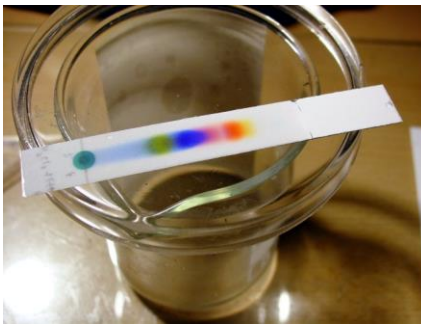
2. **Separating with a filter**
   - Example: Use a _____ to separate sand from

3. **Separating by evaporation**
   - Example: if you have a cup of salt water, let the water _____ and only the salt will be left

4. **Separating by distillation**
   - **<u>Distillation</u>:** _____ separating a solution of a solid and a liquid by boiling off the liquid
   - Examples:
     - heat saltwater to distill it into pure water
     - crude oil –distilled to obtain gasoline, kerosene, and diesel



5. **Separating by density**
   - Example: Sand and Sawdust - Put sand and sawdust in water to separate them (sawdust will float because it is _____ _____ than water)



6. **Separating by chromatography:**
   - Chroma = color
   - –graphy = writing
   - **<u>Chromatography</u>**: Separation of substances in a mixture by the _____ of the substances to a material through which the mixture is passed
   - Example: Pigments from plants