Name: _____

Class/Lab Period: _____

# Separation of a Mixture

## Data Table A. *Physical Properties of Substances*

| Substance | Physical Appearance | Magnetism | Solubility in Water |
|---|---|---|---|
| Salt | | | |
| Sand | | | |
| Iron | | | |
| | **Physical Appearance** | **Effect of Water** | **Results of Filtration** |
| Sand + Salt | | | |

## Data Table B. *Separation of a Mixture*

Mixture Code _____

Mass of Original Mixture _____

Mass of Iron (recovered) _____

Mass of Salt (recovered) _____

Mass of Sand (recovered) _____

Total Mass of Recovered Solids _____

Use this space to record the mass measurements that are needed to calculate the mass percent composition of the sample mixture.

## Post-Lab Questions

1. The chemical formulas of iron and salt are Fe and NaCl, respectively. Are these substances elements or compounds?

2. Are any of the substances magnetic? Is magnetism a physical or chemical property? Explain.

3. Which substance(s) dissolved in water? Is solubility a physical or chemical property? Explain.

4. Is the combination of salt and sand a new compound or a mixture? Explain.

5. Describe the results of the filtration experiment. Which substance remained on the filter paper after filtration? Is the filtrate (the liquid that passed through the funnel) a pure substance? Explain.

6. Calculate the *mass percentage* of each component in the mixture. Assume that the total mass is the mass of the *original mixture* that you tested.

7. The actual yield is the mass of material recovered after a separation process. The theoretical yield is the maximum amount of substance that can be obtained, assuming 100% efficiency of each step in the separation procedure. The actual yield is usually less than theoretical because some material is generally lost in any physical manipulation in the lab. The *percent yield,* which describes the efficiency of the recovery operation, is calculated using the following equation. Calculate the percent yield for the separation of your mixture.

percent yield = (actual yield/theoretical yield) × 100%