

Date: \_\_\_\_\_

Name: \_\_\_\_\_

Lab Partner: \_\_\_\_\_ (optional) \_\_\_\_\_

Blk: \_\_\_\_\_

Chemistry 11  
Separating Matter Lab

**Objective:**

1. Using a balance scale measure out and record **approximately**:  
3.00 g Plastic beads, 5.00 g Coarse Salt and 5.00 g Iron Fillings.
2. Combine the above three items into a single mechanical mixture
3. Devise a step by step procedure to separate the mechanical mixture back into its individual 3 components

**Materials:**

You will need to come up with a list of all the materials necessary for separating the above solids, it is a requirement that the mass of the items are recorded with the **before** and **after** values.

**Procedure:** (must be in a flow chart format)

Write out a detailed procedure for the separation techniques that you will use to measure out, combine and then separate the following three solids:

1. Iron Filling
2. Coarse Salt
3. Plastic beads

**Data and Observations:**

You must create your own **data table** to record the before and after mass values for each component in the mixture.

### **Analysis:**

1. Produce two separate pie charts that show the “before” and “after” the percent composition (individual masses ÷ sum of masses) of the mixture, be sure to label the “pie pieces”.
2. Using the mass values of each solid that you “recovered” calculate the Percent Yield of each solid.

$$\text{Percent Yield} = \text{mass recovered} \div \text{mass used}$$

3. Suppose a lab group reports a percent yield of 115% iron, is it really possible to collect more iron than was originally present? What is a possible explanation for such a high yield?
4. Suppose a lab group reports a percent yield of 90% salt, what is a possible explanation for the missing product?

### **Discussion:**

1. Explain how you used the different physical properties of the materials involved to separate the three solids.
2. If you were to do this experiment again, describe a different separation technique that you could have used

### **Sources of Error:**

List only the equipment and their corresponding uncertainties used to record **quantitative data**

### **Conclusion:**

Be sure to include your quantitative data (Percent Yields for each solid) and an explanation for why you reached these values.

No lab report is complete without a connection between the lab and everyday life!