

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

## Is Carbon Dioxide Heavier Than Air?

### Procedures:

1. Place about two grams (One teaspoon full) of baking soda ( $\text{NaHCO}_3$ ) into a one pint or larger zip-lock bag.
2. Place a test tube  $\frac{3}{4}$  full of Acetic Acid (Vinegar  $\text{C}_2\text{H}_4\text{O}_2$ ) into the bag being careful not to spill any of it.
3. Remove as much air as you can from the bag without mixing the liquid and solid materials. When the bag is sealed allow the two materials to mix.
4. Describe the reaction.
5. The gas in the bag is now carbon dioxide ( $\text{CO}_2$ )
6. Light candle sitting on the bottom of a metal can.
7. Carefully pour the gas from your zip-lock bag into the can with the burning candle.
8. Can you see the gas flow? Describe what happened as you poured the gas into the can.

### Questions:

Is the Carbon Dioxide heavier than air? Why? How do you know? Describe your logic.

Write a balanced chemical equation for the reaction. The Products are Sodium Acetate  $\text{Na}(\text{C}_2\text{H}_3\text{O}_2)$ , Carbon Dioxide  $\text{CO}_2$  and water  $\text{H}_2\text{O}$

What would happen if you added doubled the amount of vinegar in the bag?