 **Lab Report 4:**

**Floating One Gas on Another**

***Question:***

How can one gas displace another?

***Hypothesis:* (2)**

***Materials:***

600 mL beaker 250 mL beaker

Graduated cylinder 5 mL measuring spoon

Cardboard (15 cm x 15 cm) Short piece of candle (3 cm)

Wooden splint Vinegar

Baking soda Lighter

Fire Extinguisher

***Procedure:***

1. Pour 100 mL of vinegar into the 600 mL beaker. Add 5 mL of baking soda. Place the cardboard on the beaker, leaving a small opening for air to escape.
2. Stand the candle in the 250 mL beaker and light it with the wooden splint or lighter. Watch the candle for several seconds to assure yourself that it burns steadily.
3. When the vinegar and baking soda have stopped fizzing, slowly pour the gas down the side of the 250 mL beaker. Do not pour out any of the liquid. See *Nelson Science & Technology* texts for illustrations.

***Observations:***

1. Draw what you saw in your experiment. **(3)**
2. Label any important information in your drawing that would help understand what was going on in the experiment. **(2)**
3. Describe what you saw in your experiment. **(5)**

***Analysis:* (10)**

1. Describe how the candle burned:
   1. before you poured the gas into the beaker;
   2. as your first started pouring the gas into the beaker;
   3. when you continued to pour the gas into the beaker.
2. When vinegar and baking soda react, carbon dioxide gas is produced. How do you know that the carbon dioxide flowed? When carbon dioxide and air are put in the same container, where does the carbon dioxide go? Where does the air go?
3. What happened to the air in the 250 mL beaker? When you added baking soda to the vinegar in the larger beaker, what do you think happened to the air that was originally in the beaker? How do you know this?

***Conclusion:***

How can one gas displace another? **(3)**

***Evaluation:***

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| **Category** | **Level 4** | **Level 3** | **Level 2** | **Level 1** | **%** |
| **Observations** | The relationship between the procedure and what was observed is discussed in detail. All information is accurate. | The relationship between the procedure and what was observed is discussed. Most information is accurate. |  |  | 25 |
| **Diagrams** | Clear, accurate diagrams are included and make the experiment easier to understand. Diagrams are labeled neatly and accurately. | Diagrams are included and labeled neatly and accurately. |  |  | 25 |
| **Analysis** | The patterns in the observations are discussed and logically analyzed. Predictions are made about what might happen if part of the lab were changed or how the experimental design could be changed. | The patterns in the observations are discussed and logically analyzed. Some predictions are made. |  |  | 25 |
| **Conclusion** | Conclusion includes whether the findings supported the hypothesis, possible sources of error, and what was learned from the experiment. | Conclusion includes whether the findings supported the hypothesis and what was learned from the experiment. |  |  | 25 |