 **Lab Report 9:**

**Rising and Falling**

***Question:***

How does a difference in water temperature affect the movement of water in lakes and oceans?

***Hypothesis:*** [**2**]

***Materials:***

Apron Safety Goggles

2 – 600 mL Pyrex Beakers Ice Cold Water and Hot Water

Room Temperature Water Coloured Ice Cubes (2 different colours)

Tongs or Plastic Fork Hot Plate

Retort Stand Ring Clamp

Watch with Second Hand

***Procedure:***

1. Measure 400 mL of ice water into a 600 mL beaker. Let the water stop moving. Using tongs, gently place a coloured ice cube in the water at one side of the beaker.
2. Repeat step 1, using 400 mL of water at room temperature.
3. Repeat step 1 again, using 400 mL of hot water.

***Observations:***

1. Create a table for recording your data. **(5)**
2. Make a series of quick sketches to show what happens when the ice cube is placed in the ice cold water and at 1 minute intervals. **(5)**
3. Make a series of quick sketches to show what happens when the ice cube is placed in the room temperature water and at 1 minute intervals. **(5)**
4. Make a series of quick sketches to show what happens when the ice cube is placed in the hot water and at 1 minute intervals. **(5)**
5. Did the one water mix more quickly than the other? **(2)**

***Analysis:***

1. Which appears to be more dense, warmer water or cooler water? Why? **(4)**
2. How did the different temperatures of the beaker water affect the speed at which water mixed? **(4)**
3. Write a report for your investigation. **(5)**

***Conclusion:***

How does a difference in water temperature affect the movement of water in lakes and oceans? **(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 |