**Year 7 Science Inquiry Skills**

**Heating Water Using a Bunsen Burner**

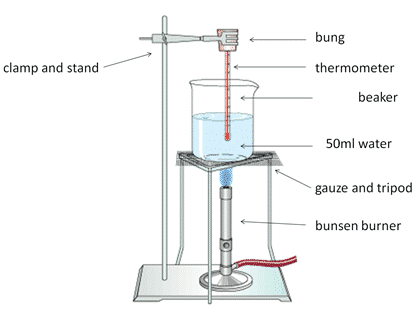
**Aim**: To investigate the difference between heating water with a safety flame and a blue flame on the Bunsen burner.

**Equipment**:

* 2x 250mL beaker
* 200mL water
* Thermometer
* Tripod
* Gauze mat
* Retort stand
* Boss head
* Clamp
* Heatproof mat
* Stopwatch
* Safety glasses
* Matches
* Bung
* Paper towel

**Method**:

1. Collect equipment and set up as per the diagram below.



100mL water

250mL beaker

1. Draw a scientific diagram of the equipment below.
2. Write a hypothesis for your experiment (a testable statement).

**Method:**

1. Measure the starting temperature of the water. Write this in the table provided (in Results section) for 0 minutes.
2. Safely light the Bunsen burner and leave on the safety (yellow) flame.
3. Continue to heat the water over the Bunsen burner, recording the temperature of the water every 30 seconds for a total of 5 minutes.
4. Turn Bunsen burner off and remove the beaker using folded paper towel.
5. Repeat Steps 1 and 3 with a second, room temperature beaker.
6. Safely light the Bunsen burner and open the air holes to provide the blue flame.
7. Continue to heat the water over the Bunsen burner, recording the temperature of the water every 30 seconds for a total of 5 minutes.

**Results:**

|  |  |  |
| --- | --- | --- |
| Time (minutes) | Temperature (°C) | |
| Yellow Flame | Blue Flame |
| 0 |  |  |
| 0.5 |  |  |
| 1.0 |  |  |
| 1.5 |  |  |
| 2.0 |  |  |
| 2.5 |  |  |
| 3.0 |  |  |
| 3.5 |  |  |
| 4.0 |  |  |
| 4.5 |  |  |
| 5.0 |  |  |

**Questions**:

1. Which variable did you change in this experiment?
2. Which variable did you measure/observe in this experiment?
3. Which variables did you keep the same in this experiment?

1. Draw an appropriate graph for your data.

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1. What type of data have you collected (quantitative/qualitative)?
2. Make an inference about the observation obtained from this experiment.

**Discussion**

Paragraph 1: Looking back at the hypothesis

* State whether the hypothesis was supported or not
* Explain your choice using examples from your data

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Paragraph 2: Identifying errors

* Identify an error that would affect the reliability of the results
* Explain how the error would affect the results

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Paragraph 3: Identifying improvements

* Identify a way to improve the reliability of the results
* Explain how the reliability would be improved

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Conclusion: Summing up the experiment

* A brief statement of what was found in the experiment
* A brief statement of how the reliability could be improved

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