

Name _____
Date _____

Hot Plate vs. Bunsen Burner Lab

Purpose:

To determine the fastest way to heat water to boiling in the lab.
To demonstrate safe lab practices.

Hypothesis: Which heat source do you think will heat the water more quickly, a hot plate or a Bunsen burner?

Safety:

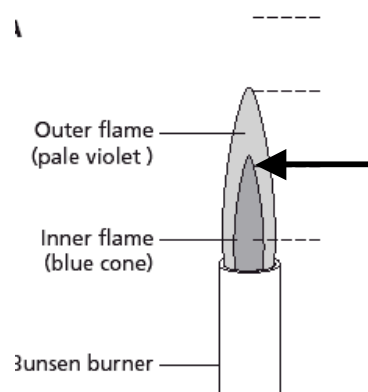


Materials:

2 250 mL beakers	Ring stand
100 mL or 50 mL graduated cylinder	Ring for ring stand
Hot plate	Thermometer
2 ceramic wire gauze	Stopwatch
Bunsen burner	Thermal gloves and/or beaker tongs
Striker	

Procedure:

1. Measure out 100.0 mL of distilled water into each of two 250 mL beakers.
2. Place one ceramic wire gauze on top of hot plate and place one beaker of water on top of ceramic wire gauze. Do NOT turn hot plate on yet.
3. Place ring on ring stand. Place second ceramic wire gauze on ring.
4. Light Bunsen burner and place it next to (not underneath) the ring. Adjust the height of the ring on the ring stand so that the ceramic wire gauze is at the top of the inner blue cone as shown in the diagram here. This is the hottest part of the Bunsen burner flame.
5. Place the second beaker of water on top of the ceramic wire gauze.
6. At the same time, put the Bunsen burner under the water and turn the hot plate on high. Start the stopwatch.
7. Periodically check the temperature of each beaker of water using the thermometer.
8. Record the time it takes for each beaker to reach 100°C in the table on back.
9. Turn off burner and hot plate and allow beakers of water to cool.
10. Pour water down drain carefully and put all cooled equipment away in proper locations.



Results:

Heat Source	Time (s)
Hot Plate	
Bunsen Burner	

Conclusions:

1. What is the independent variable in this experiment?
2. What is the dependent variable in this experiment?
3. What were the constants in this experiment?
4. Which heat source tested heats the water the fastest?
5. What errors were made in this experiment that may have affected your results?