



# Mad Scientist



**Objectives:** Students will understand and demonstrate the proper use of various lab equipment, while adhering to all safety procedures. Students will perform laboratory task to ensure proper techniques are utilized.

**Materials:** Triple Beam Balance, pipette, test tube holder, ring stand, Bunsen burner, beaker, stop watch, tooth picks, forceps, beans, cup, thermometer, salt, igniter, wire gauze, test tube, scoop, utility clamp, graduated cylinder, petri dish, and ring clamp.

## Procedures:

1. Calibrate the Triple Beam Balance. Allow Mr. Robinson to check. The mass of the beaker is \_\_\_\_\_. Add 200 ml of water. The mass of the beaker and water is \_\_\_\_\_. What is the mass of the water? \_\_\_\_\_
2. Transfer 30 beans from a cup to petri dish using forceps. You can not drop the bean or touch them with your fingers. If you drop them, points will be deducted.
3. Set up a ring stand with a ring clamp. Connect a Bunsen burner to the gas supply and light a burner. Using a graduated cylinder add 200 ml to beaker and heat for 60 seconds. What is the initial temperature in \_\_\_\_\_ F and \_\_\_\_\_ C? What is the temperature after 2 minutes in \_\_\_\_\_ F and \_\_\_\_\_ C? What type of heat transfer is this and yes this is review from a previous year? *(w/iter)*
4. In a test tube, add two scoops of sodium bicarbonate with a scoop. Using a pipette dispense 3 ml of hydrochloric acid into a graduated cylinder. Pour hydrochloric acid into the test tube with the sodium bicarbonate. Make an observation and write down in complete sentences what you observed? Why do you think this happened? Be very specific in your reasoning. Be careful when cleaning test tube.

5. Turn on the hot plate <sup>7</sup>~~10~~. Place 150 ml of water into a clean beaker. What is the initial temperature in \_\_\_\_\_ F and \_\_\_\_\_ C? Create a chart to collect data. Collect temperature in F and C every **30** seconds until water is boiling. Continue with step 6 and 7.

Time	Temp F	Temp C

6. What will happen if you add salt to the boiling water? Make a hypothesis or guess.

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7. Add salt or sodium chloride to the boiling water while continuing to monitor temperatures for 2 minutes. Create a graph for procedure # 5 and 7. Show time vs temperature in F.