**Materials:**

* Two 100 ml beaker
* CH3COOH (acetic acid/Vinegar)
* CaCl2 (Calcium chloride)
* NaHCO3 (Baking soda)
* Baking Soda Solution
* Thermometer
* Graph paper

**Procedures:**

**Part I Vinegar and baking soda:**

1. Pour 50 mL of vinegar into a plastic cup. Measure and record the temperature.
2. 4 grams of baking soda to react with the vinegar.
3. Add the baking soda to the vinegar. Record the temperature of the reaction every 10 seconds until it equilibrates.
4. Repeat steps 1-3 twice more, increasing the mass 4g for each trial (keeping the volume of vinegar constant).
5. Observe and record your data on a chart (you design it!)

**Part II Calcium chloride and Baking Soda Solution:**

1. Pour 50 mL of baking soda solution into a beaker. Measure and record the temperature.
2. 10 grams of calcium chloride.
3. Add the calcium chloride to the baking solution. Record the temperature of the reaction every 10 seconds until it equilibrates.
4. Repeat steps 1-3 twice more, increasing the mass of CaCl2 by 3 grams for each trial (keeping the volume of baking soda solution constant).
5. Observe and record your data on a chart (you design it!)

**Data Table:** (Student created in Science Notebook)

**Graph:** Graph temp verses mass for all six trials. Use different colors for all six trials.

1. Did changing the concentration of the solid affect the change in temperature of the reaction? Why do you believe this is so?

2. Which of the reactions was endothermic? How do you know?

3. Which reaction was exothermic? How do you know?

4. Does graphing your data result in a straight line? Explain.