Chemistry in a Ziploc Bag

Purpose: The purpose of this lab is to perform a hands-on chemistry experiment while recording temperature data that will be reported out in a line graph.

Hypothesis: Write an educated guess about what will happen when baking soda, calcium chloride, and phenol red are mixed together in a Ziploc bag. State your answer to the question as a hypothesis (remember “I think” is wimpy 😊)

Materials:
- Aluminum Pan
- Ziploc bag of calcium chloride
- Baking soda
- Phenol red solution
- 10 ml graduated cylinder
- Safety goggles
- Mini-spoon
- Thermometer

Procedure:
1. Put your safety goggles on and do not remove them until instructed to by your teacher.
2. Measure out 1 mini-spoon of baking soda and pour it into the Ziploc bag of Calcium Chloride.
3. Seal the bag.
4. Hold the Ziploc bag upright over the aluminum pan and have your partner gently squeeze the outside of the bag at the bottom to mix the two solids together.
5. Observe what is happening and record these observations in data table 1 as “calcium chloride and baking soda only”.
6. Add 10 ml of the phenol red solution to the Ziploc bag while your partner holds the bag upright over the pan.
7. Seal the bag and gently move the contents of the bag back and forth.
8. Record the temperature of the outside of the bag by placing the thermometer on the outside of the bag and folding the bag around the bulb of the thermometer. Do not place the thermometer inside of the bag – only open the bag when instructed to do so. Record the temperature in the data table as “O minutes”

*Adapted from “Fun with Chemistry” by Saquis M & Saquis J
9. Observe what is happening and record these observations in data table 1 as “After phenol red solution is added”.
10. Record the temperature of the outside of the bag every minute for the next 5 minutes and record it data table 2.
11. Using numbers – make a line graph of the results. The x-axis label should be “Time in minutes” and the y-axis lab should be “Temperature in degrees celsius of reaction” Be sure to give your graph and appropriate title.

Data:

Data Table 1: Observations of chemical reactions

<table>
<thead>
<tr>
<th>Calcium chloride and baking soda only</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>After phenol red is added</td>
<td></td>
</tr>
</tbody>
</table>

Data table 2: Temperature of chemical reaction

<table>
<thead>
<tr>
<th>Time of Reaction</th>
<th>Temperature in degrees celsius</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 minutes</td>
<td></td>
</tr>
<tr>
<td>1 minute</td>
<td></td>
</tr>
<tr>
<td>2 minutes</td>
<td></td>
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<tr>
<td>3 minutes</td>
<td></td>
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<tr>
<td>4 minutes</td>
<td></td>
</tr>
<tr>
<td>5 minutes</td>
<td></td>
</tr>
</tbody>
</table>

Conclusion

Using the T-Bear format, please write a complete conclusion paragraph about this lab.