DATA SHEET

I. The Solid State
Observations of the dry ice:

Observations of the dry ice in the water + Universal Indicator solution:

Initial color of the water + Universal Indicator solution

Initial pH of the water + Universal Indicator solution

Color of the water + NaOH + Universal Indicator solution

pH of the water + NaOH + Universal Indicator solution

Final color of the water + Universal Indicator solution

Final pH of the water + Universal Indicator solution

II. The Liquid State
Observations of the liquid nitrogen:

Physical information about the grape before submersion in liquid N₂:

Observations about the grape after submersion in liquid N₂ and dropping to floor:

Physical information about the glove before submersion in liquid N₂:

Physical information about the glove after submersion in liquid N₂:

III. The Gas State
Observations of outside of Styrofoam™ cup:

Observations of gas generation:

Observations of gas + lit match:
REVIEW QUESTIONS

1. Indicate the physical change that was observed and the scientific term that describes that process for each of the following:

<table>
<thead>
<tr>
<th>Event</th>
<th>Change</th>
<th>Term</th>
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</thead>
<tbody>
<tr>
<td>Dry ice in weigh boat</td>
<td></td>
<td></td>
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<tr>
<td>Liquid N₂ in cup</td>
<td></td>
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<tr>
<td>H₂O on outside of cup</td>
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2. Why would dry ice be a good refrigerant for items being shipped that needed to stay below room temperature?

3. pH tells us whether something is, acidic, neutral, or basic. 7 is considered neutral, anything less than 7 is considered acidic, and anything above 7 is considered basic. Was your solution in part I initially acidic, neutral, or basic? After adding NaOH? After dissolving the CO₂? What does this tell you about CO₂?

4. You should have observed a solid forming on the outside of the Styrofoam™ cup once the liquid N₂ had been added to it. Explain what you think caused this formation of a solid.

5. When you held the lighted match near the opening of the test tube, you should have heard a “pop”. What does this tell you about the gas being generated?