

Name: \_\_\_\_\_

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 N<sub>2</sub>:

Observations about the grape after submersion in liquid N<sub>2</sub> and dropping to floor:

Physical information about the glove before submersion in liquid N<sub>2</sub>:

Physical information about the glove after submersion in liquid N<sub>2</sub>:

III. The Gas State

Observations of outside of Styrofoam™ cup:

Observations of gas generation:

Observations of gas + lit match:

Name: \_\_\_\_\_

REVIEW QUESTIONS

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

Event	Change	Term
Dry ice in weigh boat		
Liquid N <sub>2</sub> in cup		
H <sub>2</sub> O on outside of cup		

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 CO<sub>2</sub>? What does this tell you about CO<sub>2</sub>?

4. You should have observed a solid forming on the outside of the Styrofoam™ cup once the liquid N<sub>2</sub> 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?