Name: _____ Pd: _____ Science Number:_____

Lab: Messing With Mixtures 1 pt ec printing

Tasty Solutions: A comparison of chemical vs mechanical breakdown

1. **Complete the Scientific Method steps below**. You will then be given 3 pieces of m&m's for each group member.
The class will do this together while the teacher reports the time on the board.
Record YOUR time when you can taste chocolate in the data table

II. Statement of the Problem: (Identify the problem that exists) **:**

_____

III. Purpose (Why are you doing the experiment/ what do you hope to discover…)

_____

IV. Hypothesis: Before you do the experiment, what do you predict will happen? This should be based on Observations and Preliminary Research."If..., then..., because..." Make this quantitative (ie: it needs a number value). How long (in seconds) do you expect it will take to taste chocolate in each of the steps **and why**:

Candy1: _____
Candy2: _____
Candy3: _____

V. Variables & Controls:

INDEPENDENT VARIABLE: What is the one condition that you are changing?
What are you comparing or testing? **1.**_____

DEPENDENT VARIABLE: What results are your going to measure & record?
1._____

CONTROLLED VARIABLES :List the things that you plan to keep the same during your experiment, so that they will not affect your results.

1._____ **2.** _____**3.** _____

VI. Procedures: (step by step instructions on how to do the experiment)

Step 1: Place one piece of candy in your mouth and allow it to dissolve without using your tongue or teeth to help! Your teacher will state the time in 10 second intervals, and record them on the board.
YOU will Record the time (in seconds) it takes for the candy shell to dissolve in the chart and NOT TALK until the last person to taste the chocolate has recorded their time. DO NOT DRINK ANY WATER until this lab is completed.

Step 2: Place another piece of candy in your mouth and allow it to dissolve using only your tongue to move it around. Record the time (in seconds) it takes for the candy shell to dissolve in the chart. DO NOT DRINK ANY WATER

Step 3: Place another piece of candy in your mouth and allow it to dissolve using only your tongue to move it around. Record the time (in seconds) it takes for the candy shell to dissolve. AFTER this you can drink water! ☺

VII. Materials (list everything you will need to do the experiment)

1._____ **2.** _____

VIII. Experimental Observations & Results

A. Experiment Observations: (write at least 2) for each step

Candy #1: 1._____
2. _____

Candy #2: 1._____
2. _____

Candy #3: 1._____
2. _____

B. Data Table

Piece of Candy	Dissolving Time (in seconds)
#1	
#2	
#3	

Explain the results of your experiment in terms of dissolving rate (the time it takes for a substance to dissolve).

_____

_____

_____

Conclusion / Summary of your experiment. After your experiment, analyze your data to see if your hypothesis was accepted or rejected. If hypothesis is rejected, give possible reasons for the difference between your hypothesis and the experimental results. _____

_____

_____

Sharing your Results & Recommendations: What do you want to tell others about your results, and if you were to do this experiment over, what would you do differently?_____

_____

_____

Additional Questions:

2. In your solution, what was the solute and the solvent? Solute: _____ Solvent: _____

4. In each solution, underline the solute and circle the solvent. Remember that a SOLUTE dissolves in the SOLVENT!

(example): Ocean water: Salt and water Kool-Aid: Powder, sugar, and water Antifreeze: Water and ethylene glycol

Lemonade: Water, lemon juice, and sugar Soda: Syrup, water, and CO_2 gas Air: Nitrogen, oxygen, and other gases

5. What liquid is called the "universal solvent"? Why?

_____

_____

6. Which would have the most SOLUTE: a glass of very sweet Kool-Aid or a glass of barely sweet Kool-Aid? Give a reason for your answer.

_____

_____