

Chemistry Laboratory Practical Assessment

Block _____

Date _____

Full Name _____

Lab Partner's Name _____

You will react 5 grams of Sodium Bicarbonate with 85 ml Citric Acid solution. You will measure temperature change every 10 seconds until 1 minute (60 seconds) is complete.

INSTRUCTIONS

A. **Prepare** the Citric Acid solution and Sodium Bicarbonate.

1. **MEASURE** 15 grams of Citric Acid and dissolve in 85 ml water. Add one drop of food coloring. Observe.

I observed _____.

2. **Measure** 5 grams of Sodium Bicarbonate using a weighing tray.

Mass of weighing tray = _____

B. **RECORD** the following **additional measurements** and indicate the **correct units**:

Mass of the 250 ml beaker = _____

Mass of the beaker and citric acid = _____

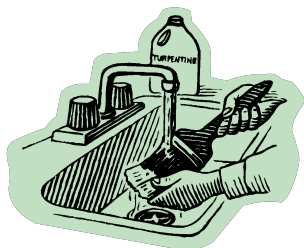
Mass of System (beaker, citric acid, weighing tray, and sodium bicarbonate) **BEFORE** the reaction = _____

Temperature of the citric acid **BEFORE** the reaction = _____

Mass of the System **AFTER** the reaction = _____

C. **RECORD** your **data** in the **table** below with your lab partner.

Time (seconds)	Temperature (degrees Celsius)
0	
10	
20	
30	
40	
50	
60	



CLEAN YOUR WORK STATION.

**FROM NOW ON, WORK ON
YOUR OWN.**

D. **GRAPH** the data manually or use Excel or Google Sheets.

E. Answer the following questions.

1. Is there **evidence of a physical change**? Explain thoroughly and provide specific examples.

2. **Analysis of data.** How would you **interpret** the results/graph?

WORD BANK:

- fizzing, bubbling
- effervescent
- solution/mixture
- endothermic/exothermic
- energy released/absorbed
- gas released
- bonds formed/broken
- carbon dioxide
- compounds
- dissolve

SENTENCE FRAMES:

- I observed...
- When the ...was added, I observed...
- There was a temperature change of...
- There was a change of mass of...
- When the compounds react, ... is produced.
- The... is evidence of a chemical reaction because...
- The change in mass/temperature indicates a physical/ chemical change because...
- According to the data, a physical/chemical change occurred because...
- The results clearly show that a physical/chemical change occurred because...
- The Law of Conservation of Mass states that _____ and this mean....

As a scientist, how do you know that a chemical reaction happened (what are **ALL** the pieces of **evidence** that a **chemical reaction** occurred? **WRITE** a paragraph to explain your thinking. Use the sentence frames and word bank to help you write your paragraph.

Think about: *The Law of Conservation of Mass and how this relates to mass change; temperature change and endothermic/exothermic reactions; new substance being formed.*

RUBRIC:

Category	7	5	3	1
Transfer of Learning	All changes occurring in each activity are clearly and correctly identified and described based on the data and observations collected, and the definitions of physical and chemical change.	Most changes occurring in each activity are correctly identified and described based on the data and observations collected, and the definitions of physical and chemical change.	Some changes occurring in each activity correctly identified and described based on the data and observations collected, and the definitions of physical and chemical change.	Few changes occurring in each activity are correctly identified and described based on the data and observations collected, and the definitions of physical and chemical change.
Communication	For all changes identified, substantial evidence is used to support all claims using scientific vocabulary. Data and observations are displayed clearly and effectively using appropriate methods.	For most changes identified, substantial evidence is used to support claims using scientific vocabulary. Data and observations are displayed effectively using appropriate methods.	For some changes identified, evidence is used to support claims using scientific vocabulary. Data and observations are displayed somewhat effectively using appropriate methods.	For few changes identified, evidence is used to support claims using scientific vocabulary. Displays of data and observations are lack clarity and effectiveness.