

7. Copy and fill in the data from your experiment into the table below:

Mass $C_6H_8O_7$	5.226g (17.0 ml) OF WATER)
Mass $NaHCO_3$	10.021g
Initial Temp ($^{\circ}C$)	21.4 $^{\circ}C$
Final Temp ($^{\circ}C$)	2.7 $^{\circ}C$
ΔT ($^{\circ}C$)	

13. Copy and fill in the data from your experiment into the table below:

Volume 0.5 M HCl	33.2 ml
Mass Mg	.610g
Initial Temp ($^{\circ}C$)	21.4 $^{\circ}C$
Final Temp ($^{\circ}C$)	39.5 $^{\circ}C$
ΔT ($^{\circ}C$)	

OBSERVATIONS

Record your observations from each of the reactions in Parts 1 and 2.

PART 1 : FIZZING DURING REACTION; SOME BAKING SODA REMAINS IN BOTTOM OF CUP AFTER THE COMPLETION OF THE REACTION.

PART 2 : SOME DARK PIECES OF MATERIAL & CLEAR LIQUID REMAINS AFTER REACTION COMPLETION

PROCESSING THE DATA

- From your observations, what was the limiting reagent in Part 1?
- From your observations, what was the limiting reagent in Part 2?
- Calculate the amount of heat (q) released or used up during the two reactions.
- How many moles of NaHCO_3 were reacted in Part 1? (Hint: what is the limiting reagent for this reaction?)
- How many moles of Mg were reacted in Part 2?
- Calculate the heat of reaction for each of the two reactions using your data from the lab. (Hint: remember that heats of reaction are always given on a per mole basis).
- Calculate ΔH_{rxn} for Part 2 based on the literature values provided in this table.

Substance	ΔH_f° (kJ/mol)
hydrochloric acid (HCl)	-92.30
magnesium (Mg)	0.00
hydrogen (H_2)	0.00
magnesium chloride (MgCl_2)	-641.6