General Chemistry 1 Calorimetry Lab Name ______________________________

exit stamp

Task 1: Warm-up

Record your observations and interpretation in the table on the right.

Salt	Observation	ΔT (°C)	Enthalpy?
			exo/endo

Task 2: Engineering cycle

Problem description: In your own words, restate what your design should accomplish

Design: What materials did you use for the first model?

Prototype 1: How easy was it to build it? How long did it take?

Test 1 (qualitative): What did you learn from comparing your design to your neighbors

Redesign: What did you change in your design, and what were you hoping to improve?

Prototype 2: How easy was it to build it? How long did it take?

Task 3: Quantitative test of prototype 2

T_{bath} =	T_{max} =	$T_{5\ min}$ =	slope = K / min

In the 5 minutes of the experiment, did more heat transfer into the device or escape into the lab? Explain.

Stirring?

Task 4: Contest

What did you learn from the three different designs that you might apply to your own design?

Task 5: Enthalpy of reaction

m(empty cup) =		m(full cup) =	
m(solution + stir bar) =		n(reaction) =	
T(initial) =	T(max) =	ΔT =	c_P(solution) = 3.9 J/(g K)

Show you calculation of the enthalpy of reaction, naming all quantities and showing all units:

Task 6: Reflect on your experience today

How did you like designing a calorimeter? How is the work of an engineer like that of a scientist, or different?

Which calorimeter do you recommend for GenChem2? Explain, using terms like function, sustainability, ease and cost