STE **Name_____**

Calculating the Specific Heat of a Metal **Specifically Hot Partner_____**

Purpose: To find the specific heat of an unknown metal, using a mixing problem approach.

Materials:

Metal cylinder, calorimeter, water, balance, graduated cylinder, 250 ml beaker , hot plate, tongs, thermometer

Procedure:

1. Find the mass of the metal cylinder. Record its mass._____
2. Gently place it in a beaker of water containing about 125 ml of water.
3. Insert a thermometer into the water.
4. Using a hot plate set to max, bring the metal -containing water to a boil. Meanwhile.....
5. Carefully measure 100.0 ml of water. Add it to a calorimeter.
6. Record the initial temperature of the water in the calorimeter._____
7. When the water is boiling, record its temperature._____
8. With tongs, carefully transfer the metal from the boiling water into the cold water of the calorimeter.
9. While stirring gently(use thermometer) with the lid on, record the temperature every 10 seconds until the temperature is stable for at least 20.0 seconds.

Time(s)	Temp(^{o}C)	Time(s)	Temp(^{o}C)	Time(s)	Temp(^{o}C)

Analysis:

Use your data and 4.19 J/(g ^{o}C) for water to calculate the specific heat of the metal. Show all steps.

Conclusion: Was the purpose achieved? How? What value did you arrive at? Mention at least one important error source involving a flaw in the design of the experiment.