06-04 Calorimeter *Name: _____*

Objective:

- Find the specific heat of a marble.

Materials:

- Calorimeter
- 100 mL of cool water
- Thermometer
- Large marble in boiling water

Procedure:

1. A hot marble will be placed into cool water. The heat will transfer from the marble into the water until they are the same temperature. The amount of heat that leaves the marble is the same as the heat absorbed by the water. By knowing the change in temperature and amount of water, we can calculate the specific heat capacity of the marble.
2. Read all the instructions first because the experiment happens quickly.
3. Put 100 mL of cool water in the calorimeter.
4. Measure the temperature of the water in the calorimeter. T_{w0} = _____
5. Quickly, get have the teacher place a hot marble in the calorimeter.
6. Use the thermometer to the gently stir the water/marble until the temperature quits changing. T_f = _____
7. Ask the teacher what the initial temperature of the marble was. T_{m0} = _____
8. Use a balance to find the mass of the marble. m_m = _____
9. Find the mass of the water using density. m_w = _____
10. Use the specific heat formula ($Q = mc\Delta T$) to find the amount of heat gained by the water. Q = _____
11. How much heat did the marble lose? Q = _____
12. Use the specific heat formula to find the specific heat capacity of the glass marble. c = _____
13. Compare this to the list in the book. Does your answer fall within the range for glass? _____
14. Where might errors have come from? _____