**Procedure:**

1. Fill a large beaker about half full with tap water and heat to a boil using a hot plate.
2. Weigh the around 30.00g of the known metal shot in a weigh boat and place it in a large test tube. Be sure to record the exact mass of the metal.
3. Put the test tube in the boiling water bath for approximately 10 minutes. Be sure the test tube is in the water so the metal is completely submerged, but DRY.
4. Add 35.0mL of distilled water to the calorimeter. Place a thermometer through the top of the calorimeter so that it protrudes out the bottom, carefully place it in the calorimeter and record the initial temperature of the water. CAUTION #1: IF THE THERMOMETER STICKS OUT TOO FAR IT WILL PUNTURE THE CALORIMETER!! If it does not stick out far enough it will not reach the water whose temperature you wish to measure.
5. Determine the temperature of the metal sample. To do this, measure the temperature of the boiling water bath. Make sure the thermometer is NOT touching the glass. An assumption is made that the temperature of the metal is equal to the temperature of the water bath. Record this as the metal’s temperature.
6. Prepare the calorimeter top and thermometer as described in step 4 again. Then, using a test tube holder, lift the test tube containing the heated metal shot from the boiling water bath and quickly, yet carefully, pour the metal shot into the calorimeter. Make sure no hot water from the outside of the test tube drips into the calorimeter.
7. Immediately replace the calorimeter top and measure the highest temperature reached. Record this temperature in the data table as the final temperature of the mixture.
8. Carefully pour the water and metal out of the calorimeter WHERE INSTRUCTED (NOT IN THE SINK!). Pat the metal dry thoroughly and dry the calorimeter.
9. Return the metal sample where instructed, make sure your hot plate is turned off, and cover the thermometers.
10. Use your data to calculate qcal.