Predict Final Temperature in Heat Transfer Lab

Choose an object of which you know the heat capacity.

Cool the object close to freezing, record the temperature.

Heat a liquid for which you know the heat capacity close to 50 degrees C.

Look up the heat capacity of the liquid and the object.

    A. If the heat capacity of the object is close to the heat capacity of the liquid, submerge the object in about the same mass of the liquid.

    B. If the heat capacity of the object is less than the heat capacity of the liquid, submerge the object in just enough liquid to cover the object.

Both masses must be known fairly accurately.

While waiting for the two objects to stabilize at a temperature, predict what that temperature will be using measurements and calculations.

$$T_f = (C_s m_s T_{si} + C_w m_w T_{wi})/ (C_w m_w + C_s m_s)$$

Write up you lab procedures, predictions, and measurements so that someone unable to do the experiment could learn <u>almost</u> as much as you learned.

Elements to Include in your lab write-up

1. Clear procedures

    a. So someone else could repeat your experiment even if they did not have these instructions

2. Prediction calculations

3. Measurements

4. Explanation of difference between prediction and measurement

    a. Why do you think the measured value was not the same as the predicted value? What might you do differently next time to reduce that difference?

5. Conclusion

    a. What are the key points of this lab?