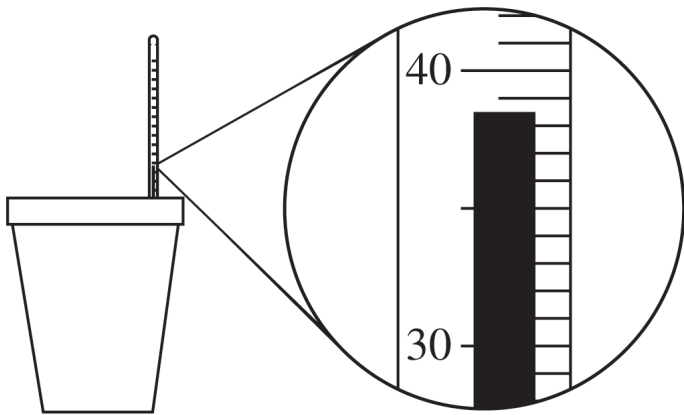


4. A student performs an experiment to determine the specific heat capacity of a metal. The student places a cube of the metal in boiling water so its temperature will be 100.0°C . The student then places the metal cube into a calorimeter that contains water and records the highest temperature of the water. A data table and a diagram of the thermometer at the highest temperature are shown.

Mass of metal cube	98.1 g
Mass of water	52.0 g
Initial temperature of metal cube	100.0°C
Initial temperature of water	25.0°C
Highest temperature of water	?



(a) What should the student report as the highest temperature of the water? _____

(c) Assuming the metal transfers 2940 J of thermal energy to the water, calculate the specific heat of the metal in $\text{J}/(\text{g}\cdot^{\circ}\text{C})$.

(d) In a second experiment, 2940 J of thermal energy is transferred from 98.1 g of aluminum, which has a specific heat capacity of $0.897 \text{ J}/(\text{g}\cdot^{\circ}\text{C})$. Explain how the magnitude of the temperature change of the aluminum, ΔT_{Al} , compares with the magnitude of the temperature change of the metal in the original experiment.