

Heat Transfer Worksheet

Data Table

	Experiment 1		Experiment 2	
Water temperature in cup initially	Cold	Hot	Cold	Hot
Water Volume				
Time (minutes)	Temperature (°C)	Temperature (°C)	Temperature (°C)	Temperature (°C)
0 (Initial Temp.)				
15				
30				

Analysis, Calculations, and Post-Lab Questions

- Which experiment produces the largest temperature increase in the “cold water” cup? Why?
- Calculate the heat lost (Q_{lost}) by the “hot water” in both experiments using Equation 1. Are these quantities positive or negative? Assume the specific heat of water is $1.0 \text{ cal/g}^\circ\text{C}$ and the density of water is 1.0 g/mL .
- Calculate the heat gained (Q_{gained}) by the “cold water” in both experiments using Equation 1. Are these quantities positive or negative? Assume the specific heat of water is $1.0 \text{ cal/g}^\circ\text{C}$ and the density of water is 1.0 g/mL .
- $-Q_{\text{lost}}$ should equal Q_{gained} . Was this observed? What are some possible errors that occurred during the transfer of thermal energy?
- Describe ways to improve this lab by eliminating sources of experimental error or design flaws in the setup.
- Why does a metal spoon feel hotter than a wooden spoon when they are held in a pot of hot water?