

Specific Heat Worksheet

Name (in ink):

$C = q/m\Delta T$ , where  $q$  = heat energy,  $m$  = mass, and  $T$  = temperature  
Remember,  $\Delta T = (T_{\text{final}} - T_{\text{initial}})$ . **Show all work and proper units.**  
Answers are provided at the end of the worksheet without units.

1. A 15.75-g piece of iron absorbs 1086.75 joules of heat energy, and its temperature changes from 25 °C to 175 °C. Calculate the specific heat capacity of iron.

2. How many joules of heat are needed to raise the temperature of 10.0 g of aluminum from 22 °C to 55 °C, if the specific heat of aluminum is 0.90 J/g °C?

3. To what temperature will a 50.0 g piece of glass raise if it absorbs 5275 joules of heat and its specific heat capacity is 0.50 J/g °C? The initial temperature of the glass is 20.0 °C.

4. Calculate the heat capacity of a piece of wood if 1500.0 g of the wood absorbs  $6.75 \times 10^4$  joules of heat, and its temperature changes from 32 °C to 57 °C.

5. 100.0 mL of 4.0 °C water is heated until its temperature is 37 °C. If the specific heat of water is 4.18 J/g °C, calculate the amount of heat energy needed to cause