Adding Heat to Turn −20 ºC Ice to +120 ºC Steam

$$1\,\text{g of Ice at } -20^{\circ}\text{C} \Rightarrow \begin{matrix} q = m\Delta T\, c_{ice} & c_{\text{ice}} = 0.50\,\frac{\text{cal}}{\text{g}\cdot{}^{\circ}\text{C}} \\ q = (1\,\text{g})\cdot(20^{\circ}\text{C})\cdot(0.50\,\frac{\text{cal}}{\text{g}\cdot{}^{\circ}\text{C}}) = 10\,\text{cal} \end{matrix} \Rightarrow 1\,\text{g of Ice at } 0^{\circ}\text{C}$$

$$1\,\text{g of Ice at } 0^{\circ}\text{C} \Rightarrow \begin{matrix} q = m L_f & L_f = 80\,\frac{\text{cal}}{\text{g}} \\ q = (1\,\text{g})\cdot(80\,\frac{\text{cal}}{\text{g}}) = 80\,\text{cal} \end{matrix} \Rightarrow 1\,\text{g of water at } 0^{\circ}\text{C}$$

$$1\,\text{g of water at } 0^{\circ}\text{C} \Rightarrow \begin{matrix} q = m\Delta T\, c_{water} & c_{\text{water}} = 1.00\,\frac{\text{cal}}{\text{g}\cdot{}^{\circ}\text{C}} \\ q = (1\,\text{g})\cdot(100^{\circ}\text{C})\cdot(1.00\,\frac{\text{cal}}{\text{g}\cdot{}^{\circ}\text{C}}) = 100\,\text{cal} \end{matrix} \Rightarrow 1\,\text{g of water at } 100^{\circ}\text{C}$$

$$1\,\text{g of water at } 100^{\circ}\text{C} \Rightarrow \begin{matrix} q = m L_v & L_v = 540\,\frac{\text{cal}}{\text{g}} \\ q = (1\,\text{g})\cdot(540\,\frac{\text{cal}}{\text{g}}) = 540\,\text{cal} \end{matrix} \Rightarrow 1\,\text{g of steam at } 100^{\circ}\text{C}$$

$$1\,\text{g of steam at } 100^{\circ}\text{C} \Rightarrow \begin{matrix} q = m\Delta T\, c_{steam} & c_{\text{steam}} = 0.48\,\frac{\text{cal}}{\text{g}\cdot{}^{\circ}\text{C}} \\ q = (1\,\text{g})\cdot(20^{\circ}\text{C})\cdot(0.48\,\frac{\text{cal}}{\text{g}\cdot{}^{\circ}\text{C}}) = 9.6\,\text{cal} \end{matrix} \Rightarrow 1\,\text{g of steam at } 120^{\circ}\text{C}$$