

Solutions

2.1 B Temperature relates to particle motion in a model; internal energy includes kinetic and potential contributions. During a change of state, energy can change particle arrangements rather than temperature.

2.2 $E = mc\Delta T = 2 \times 500 \times 3 = 3,000 \text{ J}$.

2.3 False. A flat section of a heating curve can show a phase change, not absence of energy transfer. Do not substitute temperature for a temperature difference in $E = mc\Delta T$.

2.4 specific heat capacity. specific heat capacity means Energy per mass per temperature rise.

3.1 Block energy = 1,600 J; $c = 1,600 / (0.50 \times 8) = 400 \text{ J/(kg K)}$. The uncorrected 500 J/(kg K) is too high. State the system boundary and loss assumptions.