Heat Transfer and Thermal Equilibrium Worksheet

Scoring guide · one credit per question · review written work against each rubric

Heat Transfer and Thermal Equilibrium

Question 1

Choice (2)

The warmer sample transfers energy to the cooler sample.

Question 2

Net heat transfer stops because there is no temperature difference. The objects are in thermal equilibrium.

Question 3

Choice (3)

Objects in thermal equilibrium have equal temperatures.

Question 4

It gains 240 J. In the insulated two-sample model, heat lost by the warmer sample equals heat gained by the cooler one.

A Warm Sample in a Water Bath

Question 5

Choice (4)

The first matching readings are 32 °C and 32 °C at 4 minutes.

Question 6

Solid: 32 − 70 = −38 °C. Bath: 32 − 20 = +12 °C.

Question 7

Choice (2)

The solid is still warmer than the bath at 2 minutes, 37 °C compared with 30 °C.

Question 8

Temperature change depends on heat capacity as well as heat transfer. Different sample masses or specific heat capacities can give different temperature changes for equal heat amounts.