

Heat-budget model · one phase

Model only: constant c , no phase change, no heat loss.

1 · LABEL THE GIVEN VALUES

m (kg): c ($\text{J kg}^{-1} \text{K}^{-1}$): ΔT (K):

2 · CALCULATE ENERGY TRANSFER

$Q = m c \Delta T$; units $\text{kg} \times \text{J kg}^{-1} \text{K}^{-1} \times \text{K} = \text{J}$

3 · REARRANGE FOR TEMPERATURE

$\Delta T = Q \div (m c)$; keep the unit K

4 · COMPARE AND LIMIT

Which factor changed? Which assumptions stayed?

This does not specify a real heater or material safety.