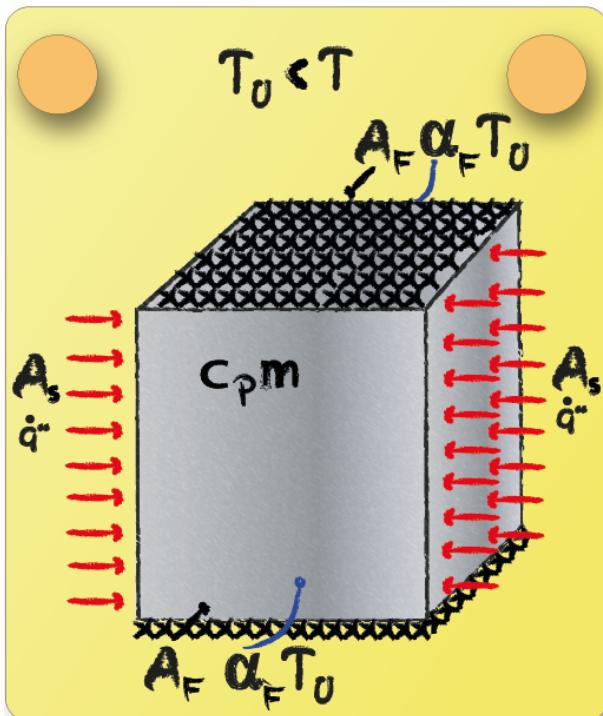


Energy Balance: Task 5



Choose the transient differential equation for the block's temperature.

1



An energy balance for the block consists of the temporal change of internal energy expressed by mass, specific heat capacity and temporal temperature derivative equal to the sum of heat flows from heating and convective cooling.

$$mc_p \frac{\partial T}{\partial t} = 2A_s \dot{q}'' - 2A_f \alpha_f (T - T_u)$$