The Physics of Energy, Explained Simply
&
The Physics of Energy For Beginners

Thermal Energy Questions

Equation: **$U = mc\Delta T$**

U = Thermal Energy (J), m = Mass (kg),

c = Specific Heat Capacity (J/kg°C), ΔT = Temperature Change (°C)

1. A metal block with a mass of 2 kg is heated, raising its temperature by 20°C. If the specific heat capacity of the metal is 500 J/kg°C, how much thermal energy is transferred?

2. A 1.5 kg sample of water (c = 4200 J/kg°C) is heated from 20°C to 50°C. How much thermal energy is used?

3. A 3 kg iron rod (c = 450 J/kg°C) is heated and its temperature rises by 30°C. Find the thermal energy transferred.

4. A 0.5 kg piece of aluminum (c = 900 J/kg°C) is heated by 15°C. Calculate the energy required.

5. A 4 kg sample of copper (c = 385 J/kg°C) increases in temperature by 25°C. How much energy is transferred?

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6. A 2.5 kg object with a specific heat capacity of 800 J/kg°C is heated by 12°C. Find the thermal energy transferred.

7. A 5 kg pan of oil (c = 2000 J/kg°C) is heated and its temperature changes by 8°C. How much energy is used?

8. A 1 kg liquid (c = 1800 J/kg°C) is heated from 10°C to 30°C. Calculate the thermal energy absorbed.

9. A 0.8 kg piece of brass (c = 380 J/kg°C) increases in temperature by 18°C. What is the energy transferred?

10. A 6 kg block of granite (c = 790 J/kg°C) is heated and its temperature rises by 5°C. Calculate the thermal energy required.