Specific Heat Capacity Questions for GCSE Physics

1. A block of metal has a mass of 2 kg. How much energy is required to raise its temperature by 5°C if its specific heat capacity is 400 J/kg°C?

2. A kettle heats 1.5 kg of water from 20°C to 100°C. The specific heat capacity of water is 4,200 J/kg°C. How much energy is required?

3. How much energy is required to heat 1.2 kg of copper from 15°C to 75°C, if the specific heat capacity of copper is 385 J/kg°C?

4. A 4 kg block of iron is heated from 30°C to 80°C using 19,250 J of energy. What is the specific heat capacity of iron?

5. A 0.3 kg aluminum block is heated by 1400 J of energy, and its temperature rises by 5°C. Calculate the specific heat capacity of aluminum.

6. How much energy would be required to raise the temperature of 3 kg of iron from 20°C to 50°C, if the specific heat capacity of iron is 450 J/kg°C?

7. A material with a specific heat capacity of 840 J/kg°C and a mass of 0.5kg releases 1,260J of energy as it cools. By how many degrees Celsius will its temperature decrease?

8. Calculate the energy needed to raise the temperature of 500 g of water by 10°C. The specific heat capacity of water is 4,200 J/kg°C.

9. If you supply 1,260 J of energy to 0.5 kg of a material with a specific heat capacity of 840 J/kg°C, by how many degrees Celsius will its temperature increase?

10. A 500 g sample of a metal absorbs 1,800 J of energy, and its temperature increases from 25°C to 55°C. Determine the metal's specific heat capacity.

11. A 1.5 kg block of lead is heated, and its temperature increases by 30°C after absorbing 5,400 J of energy. Find the specific heat capacity of lead.

12. A hot water tank contains 100 kg of water at 20°C. How much energy is required to raise the temperature of the water to 80°C, given the specific heat capacity of water is 4,200 J/kg°C?

13. How much energy is required to heat a 5 kg steel block (specific heat capacity = 450 J/kg°C) from 50°C to 200°C?

14. What is the maximum mass of water that can be heated from 21°C to 35°C by 35kJ? Take the specific heat capacity of water to be 4200 J/kg°C

15. A 250 g copper block is heated by 1,000 J of energy, and its temperature rises by 15°C. Determine the specific heat capacity of copper.