

# Specific Heat Capacity

All answers to calculations should be to 2 significant figures.

Q1 Define the term specific heat capacity

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Q2. Write down the equation which links temperature change, specific heat capacity, mass and energy change.

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Q3. What does the value of specific heat capacity tell us about how much thermal energy a material can store

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Use the data table below in the following questions

Name of Substance	Specific heat capacity J/kg°C
Aluminium	900
Marble	880
Gold	130
Steel	425
Water	4200

Q3. A 2kg aluminium block is heated and its temperature increases from 20°C to 60°C. Calculate the amount of energy needed to raise the temperature of the aluminium block.

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Q4. A marble statue cools down overnight from 25°C to 20°C and transfers 50000J of energy to the surroundings. Calculate the mass of the statue.

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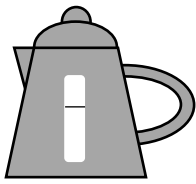
Q5. A new alloy has been made by mixing together gold, silver, aluminium and zinc. The new alloy has a mass of 2kg, when heated using a Bunsen burner it received 20000J of energy and its temperature increased by 7°C. Calculate the specific heat capacity of the new alloy.

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Q6. A 40kg steel drum is used to store 35kg of water. During the day the steel container receives thermal energy from the Sun. Both the temperature of the container and the water inside increase from 20°C to 45°C. Calculate the amount of energy needed to raise the temperature of both the water and the drum.

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Q7.



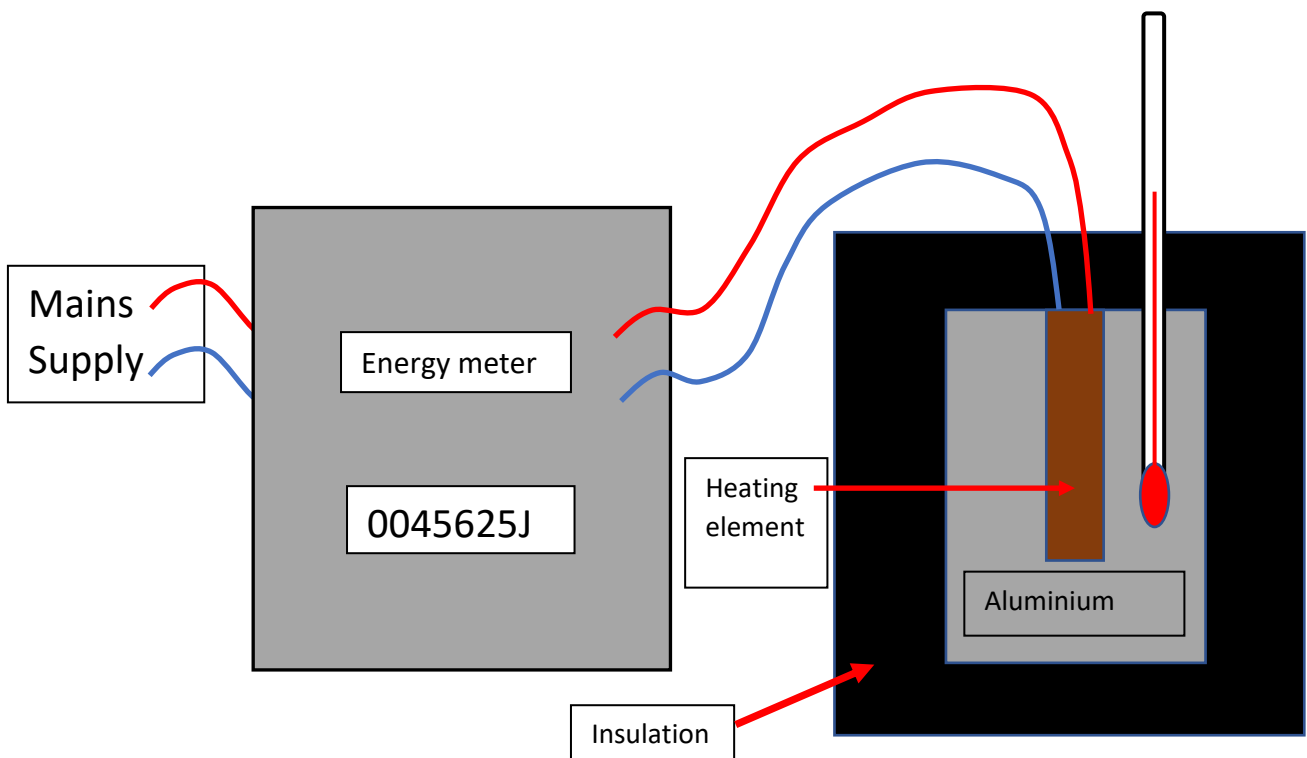
The kettle has a power rating of 3kW and is used for 5 minutes to increase the temperature of water from 25°C to 100°C. Calculate the mass of the water in the kettle

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Q8. The teacher set up the following experiment in the class.



a. Write a method explaining how to use the above equipment to measure the specific heat capacity for a 1kg block of aluminium.

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