

Material	Specific heat capacity (J/(kg°C))
Lead	130
Copper	385
Steel	420
Alluminium	910
Ice	2100
Sea water	3900
Water	4200

1

You have two identical glass beakers containing equal amounts of water and sea water. You heat them using identical electrical heaters, and record their temperatures as they rise. Which temperature will rise more quickly? Explain your answer.

2

A 1.0 kg block of steel is heated in an oven to a temperature of 200 °C. It is then dropped into a tank containing 100 kg of water. The experiment is repeated using a 1.0 kg block of aluminium. Which block will cause a bigger rise in the temperature of the water? Explain your answer.

3

How much energy must be supplied to a 5.0 kg block of copper to increase its temperature from 20 °C to 100 °C?

4

In an experiment to determine the s.h.c. of lead, a 0.80 kg block of lead is heated using a 60 W electric heater for 5.0 minutes. Calculate the energy supplied by the heater in this time.

5

The temperature of the block is found to have increased from 20 °C to 165 °C. Use this information to estimate the s.h.c. of lead.

6

The value you obtain should be higher than that given in the table above. Suggest two reasons why this might be.

7

The specific latent heat of fusion of ice has a value of 330 000 J/kg. Give another word that could be used instead of 'fusion' in the sentence above.

8

Calculate the energy that must be supplied to melt 200 g of ice.