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Aim: To determine the heat capacity of a solid.

Variables:

Independent variable (Which is changed.)	Dependent variable (Which is measured.)	Controlled variable(s) (Which remain(s) the same.)
Type of solid	Heat capacity of the solid	Water

Results:

	Mass (kg)	Initial temperature (°C)	Final temperature (°C)	Change in temperature (°C)
Water				
Solid				

1. Calculate the amount of heat given off by the water.

$$Q = mc\Delta T$$

$$Q = 0,10 \times 4\,200 \times (\Delta T)$$

$$Q = \underline{\hspace{2cm}} \text{ J}$$

\therefore $\underline{\hspace{2cm}}$ J heat energy is lost by the water.

2. How much heat energy is absorbed by the solid? Motivate your answer.

The same amount as given off by the water. According to the law of conservation of heat, the heat lost by the water is equal to the heat gained by the solid.

3. Calculate the heat capacity of the solid.

$$\therefore C = \frac{Q}{\Delta t}$$

$$C = \frac{D}{P}$$

$$C = \underline{\hspace{2cm}} \text{ J}\cdot\text{K}^{-1}$$

Conclusion:

Explain why the temperature of the water decreases, while the temperature of the solid increases.

According to the law of conservation of heat, the heat lost by the water is equal to the heat gained by the metal container.

This means that since the heat energy of the water decreases, its temperature will decrease.

The heat energy of the solid increases which means that its temperature will rise.

This means that the heat energy is transferred from the water to the solid.

