

Solutions

Each answer shows the steps, then the **result**.

2.1

- From hot to cold

2.2

- When both objects reach the same temperature and net heat flow stops

2.3

- 500 J

3.1 B

- the same temperature

3.2

(a)

- From the hot metal to the cool water

(b)

- Water's higher specific heat means it takes more energy to change its temperature, so it warms less than the metal cools — the final temperature ends up nearer the water's start

3.3

- $q_{\text{metal}} = -q_{\text{water}}$ (the heat lost by the metal equals the heat gained by the water)