

2 Thermal energy – Part 2 — Answers

Answers

Work through these after trying the questions yourself.

2.1 Conduction, convection and radiation.

2.2 They have free (delocalised) electrons that carry energy quickly through the metal.

2.3 The water at the bottom is heated, expands and becomes less dense, so it rises; cooler, denser water sinks to take its place — setting up a circulating convection current.

2.4 Radiation.

2.5 It stays the same (constant) — the energy is used to break the forces between particles, not to raise the temperature.

2.6 The fastest (most energetic) particles escape from the surface, so the average energy of the particles left behind falls, and the liquid cools.

2.7 (a) The vacuum has no particles, so it stops conduction and convection. (b) The shiny silvered walls are poor emitters of infrared and reflect it back, reducing radiation — so all three transfer routes are cut.