

Modes of Heat Transfer

Chapter 7: Heat Transfer in Nature · Topic 1

Key Concept

A metal spoon left in hot soup gets warm through conduction, as heat passes from particle to particle. Boiling water shows convection, as hot water rises to the top while cooler water sinks to be heated at the bottom, creating a circulating current. Radiation is how the Sun's heat reaches Earth across empty space, and it's also why standing near a fire feels warm even without touching it or the surrounding air directly.

Quick Revision Notes

- Conduction: heat transfer through direct contact, mainly in solids/metals.
- Convection: heat transfer through the movement of heated liquid or gas.
- Radiation: heat transfer as electromagnetic waves, needs no medium.
- The Sun's heat reaches Earth through radiation, across empty space.

Practice Questions

- 1 Give one example each of conduction, convection, and radiation.
- 2 Explain why radiation is the only mode of heat transfer that works through empty space.
- 3 Describe how convection currents form in a pot of boiling water.