Science 14

Unit B: Energy transfer technologies

Heat moves from the hotter object

Heat from refrigerator coils

- The food inside a fridge gets colder while the coils on the back feel warm.
- Those coils are dumping heat into the warmer kitchen air.

Heat and temperature

- Heat is energy moving from a hotter object to a cooler one.
- Temperature tells you how hot the object is, which tracks particle motion.

Key terms

heat

Thermal energy transferred from a hotter object to a colder object.

conduction

Heat transfer through a material by particles passing motion to their neighbours, strongest in metals.

convection

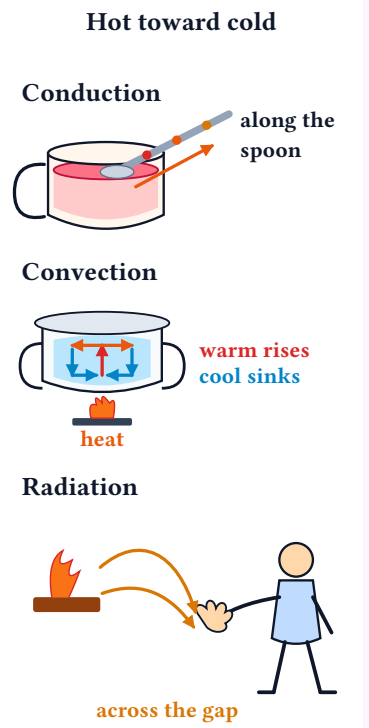
Heat transfer by the movement of a warmed fluid, such as air or water.

radiation

Heat transfer by infrared waves, which can cross empty space from a hot surface.

Three paths, one direction

- Conduction carries heat through a spoon left in a hot drink.
- Convection carries heat as warm air or water rises and cooler fluid sinks.



Fridge coils

- The food inside gets colder.
- The coils on the back pass that heat into the kitchen air.

A metal spoon

- The spoon handle warms by conduction from the hot drink.
- The drink is the hotter object and the handle starts cooler.

Radiant heat from a fire

- Radiation carries heat across the space between the fire and your face.
- The fire is hotter, so the heat moves toward you.

Hot and cold ends

- Every cooling device in this unit has a place where heat leaves and a place where heat arrives.
- The next lesson ties that transfer to particle motion and to local winds.