Heating and cooling

Answers

KS3 science quick questions

This topic online

Activate 2: Energy | Exploring Science 8K

Q	Answer	Remember
1	B	Same temperature, but more water means more particles, so more energy is stored.
2	degrees Celsius	Water freezes at 0 °C and boils at 100 °C.
3	out	Energy always flows from the hotter thing to the cooler thing.
4	conduction	Conduction is energy passed along by particles bumping into their neighbours.
5	convection	Convection needs particles that can move around, so it happens in liquids and gases.
6	radiation	Radiation needs no particles at all, so it can cross the vacuum of space.
7	conductor	Pans are made of metal because it is a good conductor.
8	insulator	Insulators keep hot things hot and cold things cold.
9	metals	That is why a metal spoon in hot soup soon gets a hot handle.
10	air	Air is a poor conductor, and trapping it stops it moving to cause convection.
11	equilibrium	Equal temperatures mean no overall energy flow.
12	faster	Hotter means more energy in the thermal store, so the particles move faster.
13	black	Dark, dull surfaces absorb more infrared radiation; white and shiny surfaces reflect it.
14	liquids and gases	In a solid the particles cannot move from place to place, so there is no convection.
15	dense	Heated air spreads out, so the same mass takes up more space - like a hot air balloon.
16	the bath	Temperature is not the same as thermal energy - the bath has far more particles, so it holds more energy overall.
17	conduction and convection	Both need particles, and a vacuum has none. A shiny lining deals with radiation.
18	radiation	Shiny surfaces are poor emitters and good reflectors of infrared.
19	21 °C	It warms up until it reaches thermal equilibrium with the room.
20	Air by the radiator heats up, spreads out and becomes less dense so it rises; cooler air sinks	Rise, spread across the ceiling, cool, sink, back to the radiator - round and round.

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Q	Answer	Remember
	to take its place, setting up a convection current round the room.	

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