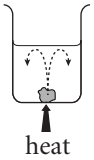
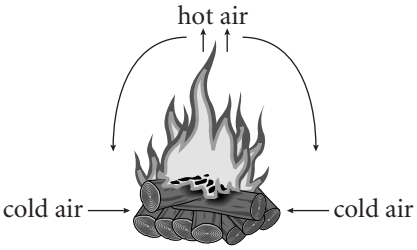
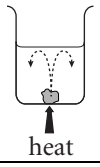
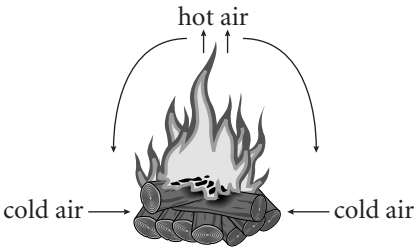
Heating and cooling

Question	Part	Answer	Mark	Level
1	a	100 °C	1	3
	b	Energy flows from the Bunsen burner flame to the water because there is a temperature difference	1	4
2	a	A metal is a good conductor *or* poor insulator	1	5
	b	Good insulator *or* poor conductor	1	5
	c	Plastic *or other strong insulating material*	1	5
3	a		1	5
	b	The hot water is less dense (*than the cooler water*)	1	6
	c	 *one mark for arrows* *one mark for labels*	2	5
	d	The heat is taken away by convection *or* the warm air round the house rises and cooler air takes its place	1	5
4	a	The rod expands *or* gets longer and then contracts *or* gets shorter	1	3
	b	The particles vibrate less vigorously *or* more slowly so move closer together	1 1	6 6
5	a	Bubbles of air	1	4
	b	The air would expand	1	4
	c	The air would contract	1	4
	d	The water would go up into the flask	1	5
6	a	**B**	1	4
	b	**C**	1	4
	c	Air in the material is a good insulator *or* poor conductor	1	5

Scores in the range of:	Level
3–5	3
6–10	4
11–13	5
14–20	6

Heating and cooling

Unit I
Tier 4–7

Question	Part	Answer	Mark	Level
1	a	0 °C, 100 °C	1	4
	b	Energy flows from the Bunsen burner flame to the water because there is a temperature difference	1	4
2	a	A metal is a good conductor *or* poor insulator	1	5
	b	Good insulator *or* poor conductor	1	5
	c	Plastic *or other strong insulating material*	1	5
3	a		1	5
	b	The hot water is less dense (*than the cooler water*)	1	6
	c	 *one mark for arrows* *one mark for labels*	2	5
	d	The heat is taken away by convection *or* the warm air round the house rises and cooler air takes its place	1	5
4		The particles vibrate more vigorously *or* faster so move further apart	1 1	6 6
5	a	They would move faster	1	6
	b	The air would contract	1	6
	c	The water would go up into the flask	1	5
6	a	The heat energy is going into breaking the forces between water particles in ice	1	7
	b	Forces between particles in a liquid are broken	1	7
7	a	Infrared radiation	1	5
	b	Convection	1	5
	c	Conduction	1	5

Scores in the range of:	Level
4–7	4
8–11	5
12–14	6
15–20	7