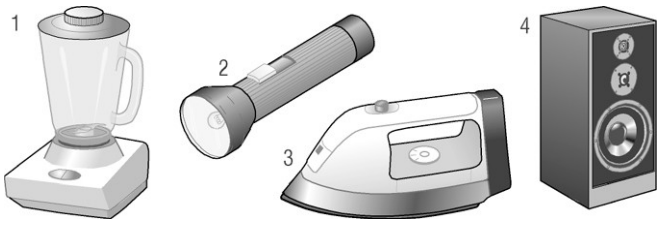
Name: **Class:**

Electrical energy

1 The devices shown transform electrical energy into other forms of energy.



The list gives the useful form of energy the devices are designed to produce. Match the words in the list with the devices numbered **1** to **4**.

A kinetic energy ..... **B** light .....

C sound ..... **D** thermal energy ..... (4)

2 A 3 kW electric motor is switched on for 15 minutes. How much energy, in kilowatt hours, does it transfer during this time?

A 0.0075 kWh **B** 0.075 kWh

C 0.75 kWh **D** 7.50 kWh (1)

3 Which of the following does **not** represent a unit of energy?

A J **B** kJ

C kW **D** kWh (1)

4 The diagram shows the readings on a household electricity meter, in kWh, at the beginning and end of one week. Each kWh of electricity costs 8p.

1	8	2	4	2

At the beginning of the week

1	8	5	1	1

At the end of the week

(a) How many kWh of electricity were used during the week?

A 242 **B** 269

C 511 **D** 753 (1)

(b) On one day 30 kWh of electricity were used. How much would this electricity cost?

A 24p **B** 30p

C £2.40 **D** £3.00 (1)

(c) During the week a 2 kW iron was used for 2.5 hours. How much energy was transformed by the iron?

Continued …

A 0.50 kWh **B** 0.75 kWh

C 5.00 kWh **D** 7.50 kWh (1)

(d) How much does it cost to use a 9 kW shower for half an hour?

A 3.6p **B** 4.5p

C 36p **D** 45p (1)

5 A student uses an electric iron.

(a) What useful energy transformation takes place in the iron?

..... (1)

(b) The iron has a power of 1.2 kW.
What is meant by 'power'?

..... (1)

(c) Electricity cost 8 p per kWh. How much does it cost the student to use the iron for 30 minutes?

.....

.....

..... (3)

Continued …

6 Each town in Britain used to have its own power station. Now electricity is supplied by a system called the National Grid.

(a) Why is the National Grid system better than each town having its own supply?

.....

..... (2)

(b) Electricity in power stations is generated at 25 000 volts. Explain why:

(i) it is transmitted across the National Grid system at 132 000 volts.

(ii) it is supplied to homes at 230 volts.

.....

..... (2)

(c) What is the name of the device used to change the potential difference of the mains supply from 25 000 volts to 132 000 volts before transmission across the National Grid?

.....

..... (2)

(d) Suggest why the cables of the National Grid are carried high above the ground rather than being buried underground.

.....

..... (2)