

Energy Transfers - 1

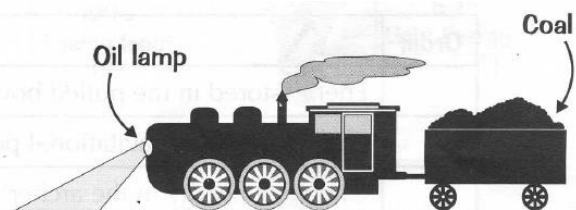
1.

Complete the following **energy transfer diagrams**. The first one has been done for you.

- A solar water heating panel: **light energy** → **heat energy**
- a) A gas cooker: → **heat and light energy**
- b) An electric buzzer: **electrical energy** →

2.

The diagram shows a **steam locomotive**.



- a) What form(s) of energy are there in the:
- i) coal
- ii) hot steam (which powers the engine)
- b) Describe two **energy transfers** which take place on the locomotive.
- 1.....
- 2.....

3.

Each of the following sentences is incorrect. Write a correct version of each one.

- a) In a battery-powered torch, the battery transfers **electrical energy** into **light energy**.
.....
- b) A **wind turbine** transfers **kinetic energy** into **electrical energy** only.
.....
- c) A wind-up toy car transfers **chemical energy** into **kinetic energy** and **sound energy**.
.....

4.

Write down the name of an appliance which transfers:

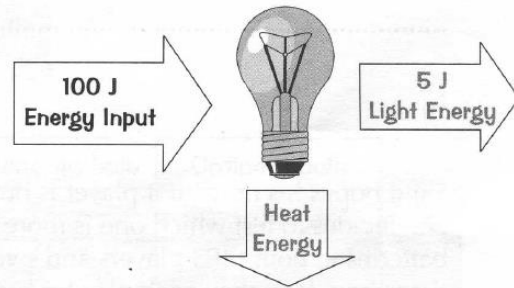
- electrical energy into **sound energy**
- light energy into **electrical energy**
- electrical energy into **heat** and **kinetic energy**



5.

Here is an **energy flow diagram** for an electric lamp. Complete the following sentences.

- The **total energy input** is J
- The **useful energy output** is J
- The amount of energy **wasted** is J



6.

Complete the table below.

Appliance	Total Energy Input (J)	Useful Energy Output (J)	Efficiency
1	2000	1500	
2		2000	0.50
3	4000		0.25

7.

A kettle has a power rating of 2000 W.
If it's 90% efficient, calculate its useful power output.

.....

.....

.....

8.

Clive is researching different kinds of electric light bulb.
He finds the following information.

	Low-energy bulb	Ordinary bulb
Electrical energy input per second (J)	15	60
Light energy output per second (J)	1.4	1.4
Cost	£3.50	50p
Typical expected lifetime	8 years	1 year
Estimated annual running cost	£1.00	£4.00

a) Write down two reasons for choosing a **low-energy** light bulb.

b) Write down two reasons why Clive might prefer to buy an ordinary bulb.
