

Energy Costs

Key words	Definitions
Combustion	The process of burning by heat.
Joules	The unit of work or energy, written as J.
Kilowatt hour	A unit of energy, written as kWh
Power	The energy transferred each second, measured in watts (W). Power = work done ÷ time taken.
Watt	The unit of power. Equal to 1 joule per second. Written as W
Kilowatt	1000 Watts. Calculated by dividing the watts by 1000. Written as kW
Cost	Number of units used times the cost per unit

Key diagram – Calculations

To convert from Watts to Kilowatts ÷1000
 To convert from Kilowatts to Watts x 1000
Energy (kWh) = Power (kW) x Time (h)

$60\text{W} \times 1\text{h} = 0.06\text{ kWh}$

$0.06\text{ kWh} \times 8\text{ h} \times 30\text{ d} = 14.4\text{ kWh per month}$

Key knowledge

Power = Energy ÷ Time

Work done is the energy transferred in a certain time.

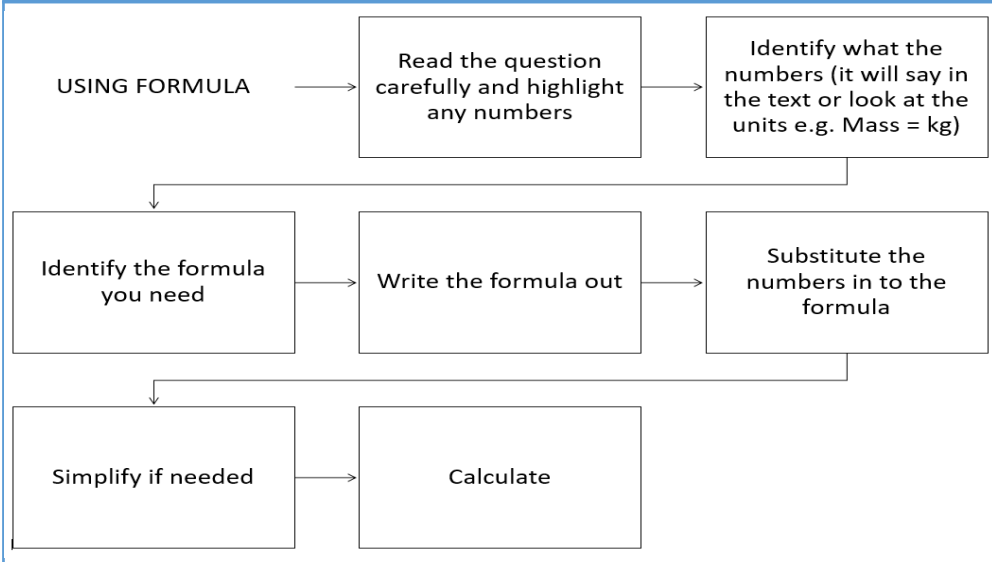
Energy (kWh) = Power (kW) x Time (hours)

Cost (£) = Energy (kWh) x Unit Cost (£)

In science, the unit used for energy is the joule, J. However, energy suppliers (companies that provide electricity and gas) use a different unit. This is the kilowatt hour, shown as kW hour or kWh

One kWh is the same as the amount of energy used by an appliance for 1 hour

Practical – Using formula



Key process – Calculating the cost of energy

Household bills

Household or domestic fuel bills include information about the energy used, including:

- the number of kW hours used
- the cost of each kW hour
- the total cost of the energy used

Gas is usually cheaper per kWh than electricity.

The cost of the energy used can be calculated:

cost = energy used in kWh × cost of 1 kWh