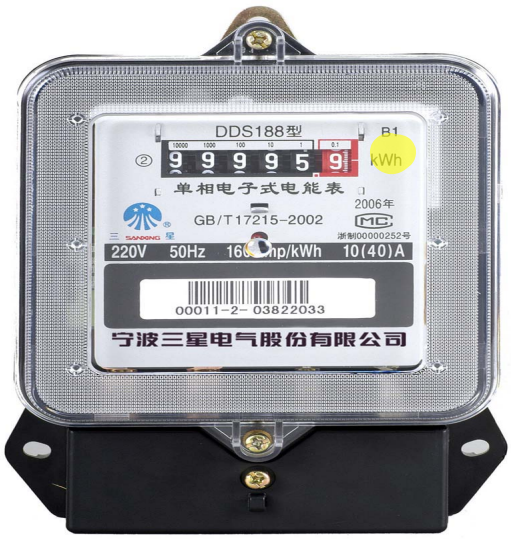
# Electricity in the home




Electricity Meter

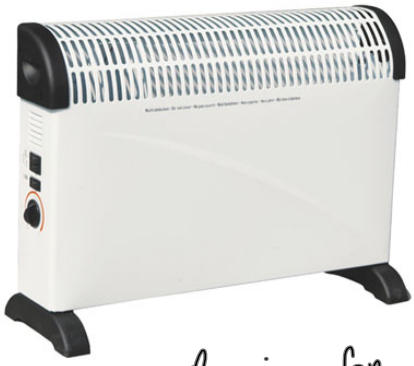
This is used to measure the number of electricity "units" used over a period of time.

1 unit = 1 kWh

"kilowatt hour"

1 unit costs ≈ 17c *

* this is roughly right Jan. 2014



Power Rating = 2000 W
= 2 kW

Running for 16 hours – how much electricity does it use.

$$kWh = \underset{(kW)}{\text{Power}} \times \underset{(h)}{\text{Time}} = 2(16) = 32 \text{ kWh}$$

or (32 units)

1 unit = 17c

Cost of Running heater = (17)(32) = 544c
= €5.44

What appliances use alot of electricity?

## What can one unit buy you?

| Appliance | |
|---|---|
| Instantaneous electrical shower | 7 - 10 mins |
| Immersion water heater | 15 - 20 mins |
| Cooker (1 large ring) | 20 - 40 mins |
| Kettle | |
| Tumble dryer | |
| Toaster (2 slices) | 40 - 60 mins |
| Washing machine<br>Dishwasher | 70 - 100 mins |
| Desktop computer (including monitor)<br>TV 28" (71cm) | 4 - 6 hours<br>7 - 9 hours |
| 100 watt ordinary light bulb<br>20 watt energy saving (CFL) light bulb | 10 hours<br>50 hours |

These figures give an average usage guide. Actual usage will depend on the age and efficiency of appliances.

## Cost of using 6 bulbs for 5 hours?


X6 lights on for 5 hours

$60 \times 6 = 360\,w$ in total

$360\,w = \frac{360}{1000}\,kw = 0.36\,kw$

$\Rightarrow$ Units in 5hrs = Power x Time = $(0.36)(5) = 1.8$ kWh

each unit = 17c

Cost = $1.8(17) = 30.6 \approx €0.31$

HW Question

**(b)** Appliances vary in the amount of electricity they use depending on their power rating. A tumble drier has a high power rating of 2.5 kW.

**(i)** Name another appliance found in the home that has a high power rating.

**(ii)** Name an appliance found in the home that has a low power rating.

The ESB charges for electricity at a rate of 12 cent per kW h. A tumble drier of power rating 2.5 kW is used for 2 hours each week for 4 weeks.

**(iii)** How many units of electricity are used?

**(iv)** What is the cost, in cent, of using the tumble drier?

(JC, OL, 2006)

▲ Fig 43.15

▲ Fig 43.16