Maths with Graham

Basic Maths made easy!

The cost of Electricity

Your electricity bill will show the electricity used in 'units' and the price of each unit. The examples below will help you to understand what a unit is and how much it buys!

One unit of electricity is equal to 1000 Watts of power used for 1 hour. This is called 1 Kilowatt hour, or 1kW/h. To find out how much an appliance costs to run per hour do the following.

Find out the cost you pay per unit (unit cost) This may be anywhere between 5p (for night rate on Economy 7) and 20p depending upon your supplier and any special discount schemes. You can get the exact amount per unit from your electricity bill. (I am writing this at the beginning of 2013 and expect prices will soon be going up again!)

Look on the appliance label and look for its power consumption in Watts or kW (1000's of watts). This is how many Watts the appliance uses. An appliance with a power consumption of 1kW would consume 1 kWh (1 kilowatt hour or unit of electricity) every sixty minutes.

Calculate the how much the appliance costs to run per hour with the simple power calculation below.

Total cost = unit cost in pence x power consumption in kilowatts.

To find how much it costs to run the appliance for a week multiply your answer by how many hours a week it is used.

Example
How much would it cost to light a 100 watt bulb per hour if one unit of electricity costs 14.1p?

To change watts to kilowatts divide by 1000
100/1000 = 0.1

14.1p x 0.1 = 1.41p per hour to run.

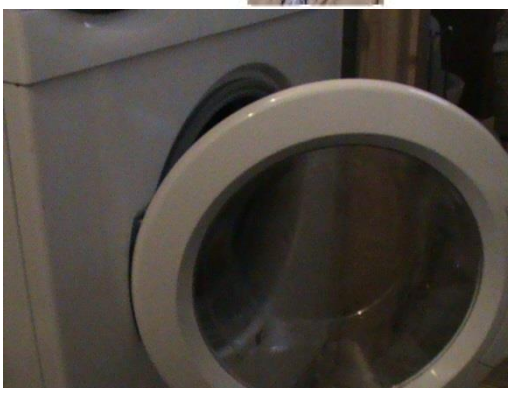
If the light bulb is on for 4 hours every evening, how much will it cost a week?

1.41 x 4 x 7=39.48 = 39p a week to the nearest penny.

How much is this a year?

39.48 x 52 = 2052.96p = £20.53 to the nearest penny.

See if you can calculate how much these appliances cost to run, then do some calculations for the appliances you have at home. You may be surprised to find out how much they are costing you! Don't forget to round answers to the nearest penny.



A washing machine uses 1.2kWh of electricity and is used for approximately 7 hours a week. How much does this cost to run? Electricity is charged at 13.5p a unit.

a) a week 13.5 x 1.2 x 7 =_____p =

£_____ to the nearest penny

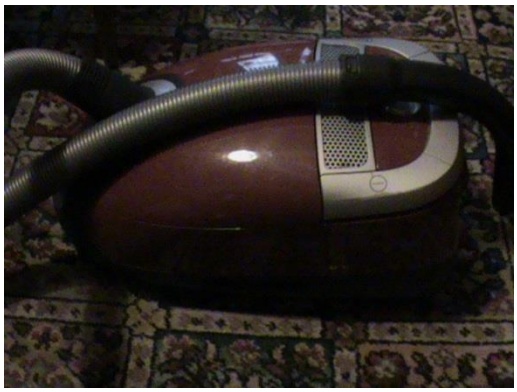
b) a year. £_____ x 52 =£_____ a year.

A vacuum cleaner uses 2.2 kWh of electricity. It is used for 2 hours a week. Electricity is charged at 16.3p a unit. How much does the vacuum cost to use a week?

16.3 x_____x 2 = _____p =_____p to the nearest penny.

How much does it cost per year?

72p x _____= _____p = £_____



This vacuum cleaner is replaced by a much more energy efficient model. The new model only consumes 0.8kWh.How much will this cost to run a week?

16.3 x _____x 2 =26.08p =

_____p to the nearest penny.

How much is this a year?

26p x _____ = £ _____

How much does the new cleaner save a year compared to the old cleaner?

£_____

Tommy has a bad habit of leaving the TV on when he is not watching it. It is rated at 176 Watts. If he leaves it on for 3 hours a day when he is not watching it and he pays 16.5p for a unit of electricity, how much could he save each day by turning it off?

176 watts = _____kWh

0.176 x _____hours x _____p = _____p = _____p to the nearest penny.

How much would Tommy save a year? _____ x _____p = _____p = £_____

Now find out about the electrical appliances in your home. Which cost you the most?

If you are thinking of buying a new electrical appliance always consider how much the electricity will cost as well as the price of the item. Running costs for new televisions (according to Which?) currently vary from just £4 a year to £83 a year, so you can make significant savings.