

How much power does your classroom use?

Introduction

Electrical power is measured in watts (W). If you look at the back or the base of any electrical appliance you should find a sticker that shows the electrical power needed to run that appliance.

The power required by an electrical appliance can be calculated by the voltage of the supply (in volts) multiplied by the current drawn by the appliance (in amps).

What you need

- Paper and pencil
- Access to the internet

Investigate the amount of electrical energy used in your classroom

To calculate the amount of electrical energy used in your classroom just follows these steps:

1. Write a list of all of the electrical appliances in your classroom – remember to include the lights.
2. Examine the labels on the items you have included in your list to find their power rating in watts.
3. Add up all of the power ratings you have collected. This will give you the amount of electrical power that your classroom would use if everything was switched on at the same time.
4. In reality it is unlikely that all electrical appliances will be switched on at the same time. For each appliance draw a graph using the axes below to show when it might be switched on and how much power it might use in a typical 24 hour period.

Remember that some appliances will be left on standby and will still need electrical power – you may be able to use the internet to find out what this standby power consumption is or your teacher may have a meter which can be connected to the appliance to measure this.

5. Add together all of your individual graphs to produce a graph showing the overall power consumption of your classroom in a typical 24 hours.

Extension tasks

- How will your graphs vary with different days of the week?
- How will your graphs vary with different times of the year?
- How can you use your graph to help reduce the energy use in your classroom?