

# What's a Watt?

## Home Energy Use Educator Guide

### Big Idea

Individuals have a significant amount of choice with how they use electricity in their home. This activity will launch discussions about electricity use in the home while also educating visitors with ways to conserve their electricity consumption.

### General Description

By sorting twelve common household items according to their energy needs visitors will learn ways to conserve and reduce their energy consumption. The activity also addresses standby or vampire power, one of the fastest growing energy uses. Suitable for family groups of all ages; the activity takes 10-15 minutes.

### Materials

Model pieces of common household appliances (optional)  
Appliance information cards  
"What's a Watt? Home Energy Use" Information Sheet

### Set up

Display model pieces of household appliances. The models used for the information cards can be purchased through Plan Toys ([www.plantoy.com](http://www.plantoy.com))

Print and prepare Home Energy Use Cards so that participants can match them to the appliances after they have made their guess about the amount of power each requires, and have identified their potential for vampire power.

### Delivery

- Introduce visitors to the concept of power and watts. Explain that power is the rate at which something gains or loses energy and that we measure power in watts. The "What's a Watt" Home Energy Use information sheet is available to help guide visitors through the activity.
- Ask visitors to sort the twelve household appliances according to the amount of power they need to operate. Clarify that this has to do with the amount of power it takes to operate the appliance, not the total amount of energy that we use to run the appliance.
- Once visitors have sorted the appliances introduce visitors to standby, or vampire power. Many common household appliances are never fully switched off but are instead drawing a small amount of power to run a clock or receive a signal from a remote control.
- Distribute the information cards and ask visitors to compare how they sorted the appliances with the information on the cards. The vampire icon on the back of the card indicates if this appliance is a common culprit of vampire power and still may be using energy even when turned off.

- Encourage visitors to think and discuss the energy saving tips on the back of the information cards. To facilitate discussion ask visitors to brainstorm ways to eliminate vampire power.

### Background Information

The rate at which something gains or loses energy is known as power. We measure power in joules per seconds, or watts. The amount of power, or the number of watts required to operate an appliance, varies greatly both between different home appliances and within different types of the same appliances. Household lighting choices, for example, require vastly different amounts of power depending on the type of light bulb that is installed. Traditional incandescent bulbs use around 60 watts of power while new compact fluorescents can illuminate the same area for only 18 watts of power.

Standby, or vampire power, is the power that appliances use when they are off or in standby mode. Many household appliances draw a small amount of energy even when they are turned off to power a clock or receive a signal from a remote control. Although the amount of power is small (between 5 to 15 watts) the power consumption does add up; it has been estimated that vampire power accounts for 5% of household energy use. Preventing vampire power is relatively easy; simply unplug the appliance from the wall when it is not in use. People often use a power strip to shut off power to several vampire sources at once. There are also “smart” power strips that will turn off the power for you.

The statistics in this activity are national averages based on information from the US Department of Energy. If visitors would like to investigate the specific power consumption of their home appliances we would recommend purchasing a Kill-a-Watt, a simple device that will provide basic information about the power consumption of your appliances.

### Sources & Additional Resources

**Kill-a-Watt Electricity Reader:** Easy to use device that allows people to directly measure the electricity consumption of their appliances  
<http://www.p3international.com>

**Lawrence Berkeley Lab:** Discussion of vampire power sources with data from common household appliances  
<http://standby.lbl.gov/>

**Michael Bluejay Electricity:** A great resource for information on home electricity consumption including formulas for calculating your home energy use  
<http://michaelbluejay.com/electricity/>

**Plan Toys:** Toy company for models of appliances  
<http://www.plantoy.com>

**US Department of Energy:** Energy Efficiency and Renewable Energy Site, source for power consumption statistics  
<http://www.energysavers.gov/>

