



What's a Watt?

Which appliances use more power?

Activity Guide

Description: By sorting twelve common household items according to how much power they use, visitors will discuss ways to reduce their energy consumption. The activity also explores standby or vampire power, a common surprise energy waster.

Audience: Hands-on activity suitable for family groups of all ages

Length: 10-15 minutes

Learning Objective

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 reduce their electricity consumption.

Climate Connection

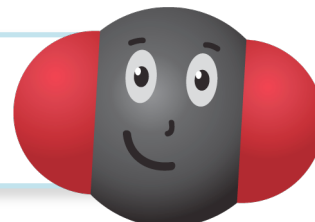
The majority of electricity that we use to power our homes comes from carbon based fossil fuels such as coal. The burning of fossil fuels releases large amounts of carbon dioxide, a greenhouse gas that contributes to climate change. Reducing the energy needs in homes results in less carbon dioxide emitted into the atmosphere.

The rate at which something gains or loses energy is known as power. The amount of power, or the number of watts needed to use an appliance, varies greatly both between different home appliances and with different types of the same appliance. Household lighting choices, for example, require drastically different amounts of power depending on the type of light bulb that is installed.

Standby or vampire power is the power appliances use when they are turned “off” but still plugged in. This is usually the small amount of power it takes to run the clock on a microwave or to allow a TV to receive a signal from a remote control. Although it is a small amount of power, it ends up accounting for a significant percentage of energy use. Vampire power can be prevented simply by unplugging the appliance from the wall when it is not in use or by using a power strip that can shut off the main power supply.

For more information about how much energy an appliance uses or if it is consuming standby or vampire power, consider purchasing a Kill-A-Watt, a simple device that measures how much power an appliance uses. The Kill-A-Watt is available to order online or offered in a number of home improvement stores.

Vampire power accounts for around 10% of household power-consumption!



Materials

- 12 appliance information cards
- Model pieces of household appliances represented on the appliance information cards (optional)ⁱ
- Kill-A-Watt
- Two small lamps, one with a compact fluorescent bulb and one with a incandescent bulb
- Example of appliance that uses vampire power

Set up

- Set the appliance cards with the pictures facing up.
- Place model pieces on appliance cards (optional)
- Have one of the lamps connected to the Kill-A-Watt

Program Delivery

PART I: SORT THE APPLIANCES!

Introduction to the concept of power and watts

Power is the rate at which something gains or loses energy, and we measure power in watts. The amount of power, or the number of watts needed to use an appliance, varies greatly both between different home appliances and within different types of the same appliances.

[Ask visitors to sort the twelve household appliances according to the amount of power they need to operate.]

[This activity focuses on the amount of power it takes to operate the appliance, not the total amount of energy that we use to run the appliance. Remind visitors that the power that it takes to turn on a refrigerator is different from the power the refrigerator uses to work for a whole day.]

What is standby or vampire power?

Standby or vampire power is the power appliances use when they are turned “off” but still plugged in. Many common household appliances are never fully switched off but instead draw a small amount of power to run a clock or receive a signal from a remote control.

[Have the audience tell you which appliances they think use vampire power.]

[After the visitors have made their predictions, have them flip the cards and ask them 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.]

PART II: THE KILL-A-WATT!

Compact Fluorescent vs. Incandescent

Household lighting choices 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.

[Have visitors look at the energy reading provided by the Kill-A-Watt for the lamp that was connected for the set up, and then connect the other lamp with the different bulb to compare.]

Vampire power detectives!

Preventing vampire power is relatively easy; simply unplug the appliance from the wall when it is not in use. People often use power strips to shut off power to several vampire sources at once. There are also “smart” power strips that will turn off the power for you.

Investigating the specific power consumption of home appliances, or finding out if they are consuming vampire power is done easily with a Kill-a-Watt.

[Connect an appliance that uses vampire power to the Kill-A-Watt and show the audience the energy reading, then connect an appliance that doesn't use vampire power to compare.] [Ask visitors if they have any potential vampire power sources in their house.]

Discussion Questions:

What are other ways of conserving energy in our homes?

Credits

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ⁱ www.plantoy.com