

School Energy Investigations – Appliances

Complete the worksheet below for each room in the building you wish to audit.

You will need: Watt Meter, various appliances

Introduction

A typical school requires a lot of energy to keep it running. Calculating how much energy is used by electrical appliances in buildings makes occupants aware of which appliances use large amounts of energy and which do not. By auditing the numbers and types of electrical appliances you have, the electricity they use, and how often you use them, you can begin to identify areas for conservation in your classroom and school building.

We are using more electrical appliances than ever before. Some of these electrical appliances continue to consume electricity even when they are turned off! Another area to consider when it comes to electricity conservation is identifying Phantom or Vampire Loads. Phantom/Vampire Loads occur when appliances are plugged in, turned OFF, and still consuming electricity.

Part 1 – Appliance Survey

A. Choose one room in the school in which to conduct an electrical appliance survey. Use a Kill-a-Watt Meter to help fill in the table below.

Kill-A-Watt Meter Directions:

1. Unplug the appliance or electronic device you want to test. Be sure to turn it off before unplugging it, if applicable.
2. Plug the Kill A Watt meter into a wall outlet near your appliance.
3. Plug the appliance or device into the face of the Kill A Watt.
4. Power on the appliance or device if necessary.
5. Press the Watt button to measure the number of Watts used instantaneously
6. Turn the appliance off. Measure the number of Watts used.
7. Press the kWh button to measure the number of kWh used over a period of time (record in part 2).

Electrical Appliance Survey				
Name of Electrical Appliance	Total number in room	Watts (W) ON (Plugged in, turned on, and in use)	Watts (W) OFF (Plugged in and turned off)	Phantom/Vampire Load detected?
				YES NO

Continue inventory on an additional sheet of paper if needed.

B. Use the data you collected on the Electrical Appliance Inventory table to put the electrical devices you surveyed in order from fewest Watts to most Watts used.

Fewest Watts used - _____

 _____ - Most Watts used

C. Appliances that generate heat tend to consume the most electricity. Did you find this to be true?

D. Did you find any electrical appliances that have Phantom/Vampire Loads? Appliances that carry Phantom/Vampire Loads are usually ones that have a remote, have digital displays or lights that are always Visible, or are voice activated. What could you do to eliminate Phantom/Vampire Loads from these appliances?

E.



Some appliances you may find in your school could be Energy Star certified. Appliances that earn the Energy Star certification label meet strict energy-efficient specifications set by the U.S. Environmental Protection Agency and the Department of Energy. Check appliances for the label to the left to see if they are an Energy Star appliance. List any that you find below. Were there any larger appliances (microwaves, refrigerators, freezers, stoves, washers, dryers, etc.) you found that were not Energy Star? List those below as well.

Energy Star Appliances	Non-Energy Star Appliances

Part 2 – kWh per year Calculation

Choose one appliance from the Electrical Appliance Inventory table. Leave the appliance plugged into the Kill-A-Watt Meter for one hour. Pressing the kWh button on your Kill-A-Watt Meter to determine kWh.

Appliance kWh per year				
Electrical Appliance	kWh consumed	Hours per week in use?	Hours per year (B X 52.143 =)	kWh per year used (A X C =)
	A.	B.	C.	D.

E. How could you reduce the kWh per year (D) of the appliance in the above chart? Describe specific strategies.

For additional insight on how to use a Kill-A-Watt Meter and possible energy saving solutions for appliances see KEEP's School Energy Audit Best Practices guide.