



# ENERGY CONSERVATION

## BASELINE AUDIT, GRADES K-2

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Consider contacting local, regional or state non-profits, energy providers, and district facilities staff for assistance conducting your audit. Their involvement is a great way to connect to the community, inspire students and demonstrate career possibilities while sharing resource expertise.

Invite parents and community members to participate in the auditing process. Depending on the grade level, student support will be needed to complete the mathematical calculations. This experience is a great way to build community.

### DASHBOARD METRIC

By how much has our school reduced its energy use in kWh?

### SURVEY

Before starting the Energy audit or going further, survey your students. Record the number of “Yes”, “No” and “Unsure” responses.

- Turning off lights is an energy saving behavior. \_\_\_\_ Yes \_\_\_\_ No \_\_\_\_ Unsure
- Saving energy is good for the planet? \_\_\_\_ Yes \_\_\_\_ No \_\_\_\_ Unsure



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**TABLE 1. ENERGY SOURCES AND EFFICIENCY**

<p>1. Does any of the school district's energy come from nonrenewable energy sources? If yes, which source(s).</p> <p>_____ solar      _____ wind</p> <p>_____ hydro      _____ geothermal</p> <p>other: _____</p>	<p>_____ Yes    _____ No    _____ Unsure</p>
<p>2. Is the equipment used for heating and cooling the school certified Energy Star?</p>	<p>_____ Yes    _____ Partially</p> <p>_____ No    _____ Unsure</p>
<p>3. Are the school's appliances certified Energy Star? (i.e. dishwashers, water fountains, pumps, ovens, etc.)</p>	<p>_____ Yes    _____ Partially</p> <p>_____ No    _____ Unsure</p>
<p>4. How much electricity does your school use in a month or quarter?</p>	<p>_____ kWh   _____ unable to access</p>
<p>5. Looking at exterior windows, are any windows cracked?</p>	<p>_____ Yes    _____ No</p>
<p>6. Looking at the exterior windows, do any seals around the windows appear to be broken or missing</p>	<p>_____ Yes    _____ No</p>
<p>7. Looking at the exterior doors, do the seals and framing seem to be tight and keeping air from escaping?</p>	<p>_____ Yes    _____ No</p>

**Think about the following question as you summarize the data in Table 1.**

1. Did students/teams have difficulty accessing specific information? Explain.
2. What ideas or actions does the class/team have after filling in Table 1?



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**TABLE 2. CLASSROOM LIGHTING**

Refer to the data collected from the class/team worksheets and after analysis write in your final results in the table below.

1. How many rooms at the school were audited?	_____
2. Number of rooms with classroom lights on while students and teachers were in the classroom.	_____ ☺
3. Number of rooms with classroom lights on while students and teachers were <b>not</b> in the classroom.	_____ ☹
4. Number of rooms with classroom lights off and no students and teachers were in the classroom.	_____ ☺
5. Number of rooms where students and teachers were using daylighting for light.	_____ ☀

**Think about the following questions as you summarize the data in Table 2.**

1. Does the team/class feel classroom lights are being used in a way that saves energy?
2. Thinking only about classroom lighting, what are the team's/class's initial thoughts on how to save more energy?



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## TABLE 3. ENERGY VAMPIRES

An energy vampire is a device that uses energy even when it is turned off.

Active	Device is on and in use.
Sleep/Standby	Device is in low-power mode.
Off	Device is turned off but still plugged in and ready for action.
Power strip	Device is plugged into a power strip, which should be turned off if it is the end of the day.
Unplugged	If you are checking before or after school, the device should be unplugged, either from the wall or if plugged into a power strip, the strip should be switched off. Take into consideration that some appliances, such as a mini-frig have to remain plugged in. Never unplug a device or appliance without direction from an adult in charge.

The table on the next page includes three appliances/devices that use large amounts of phantom energy. Choose 2 more devices from below and/or choose your own devices to add to the vampire list. Consider using a kill-a-watt meter to learn more about the amount of energy used by devices even when the device is off but plugged in. While it may not be much over the course of the day, each day, hour after hour, adds up.



desktop computer (conventional/old school screen)	computer monitor (flat screen)	laptop computer
printer	DVD/VCR player	projector
document camera	SMARTboard	fish/reptile tank filter and lights
Personal microwave	lamp(s)	Personal refrigerator
diffuser/salt lamp/scent warmer	fan(s)/heater(s)	air pump/compressor
speakers	electronic music equipment (amps, sound systems, radio)	hanging lights



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Total number of rooms audited. \_\_\_\_\_

Time of day rooms were audited. \_\_\_\_\_ before school    \_\_\_\_\_ after school    \_\_\_\_\_ during recess/lunch  
 \_\_\_\_\_ during school day    \_\_\_\_\_ varied

Device/Appliance	How many total?	Plugged into wall	Plugged into a power strip	Active	Sleep/standby	Off	Unplugged
Example: coffee maker	5	1	4	1	1	3	1
Lamps							
Personal refrigerators							
Personal fans or heaters							

If there are more devices/appliance the team/class would like to report, please add them to the last page or upload a separate document.

**Think about the following questions as you summarize the information in Table 3.**

1. Based on the data collected, does the team/class feel there is evidence to support the claim that energy vampires are impacting energy use at the school? Explain.
2. When it comes to energy vampires, what suggestions does the team/class have for making improvements?

Go to the next page.



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## Review of All Data

1. Based on what is known and has been learned, does the team/class think there is evidence to support the claim that the school needs to make energy conservation improvements?

\_\_\_\_\_ Yes  \_\_\_\_\_ No  \_\_\_\_\_ Unsure

2. Be prepared in the post-audit to explain **patterns** teams/classes have identified through their investigations.
3. Be prepared in the post-audit to explain any **cause and effect relationships** teams/classes identified between our energy using behavior and saving energy.