



# ENERGY CONSERVATION

## POST-ACTION AUDIT, GRADES 3-5

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Again, 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**

Survey the students again. Record the average response.

- On a scale from 1-10, 10 being the most important and 1 being the least important, how important is it to know the difference between positive energy conserving habits and negative energy saving habits? \_\_\_\_\_
- How I use energy can have positive and negative impacts on the environment? \_\_\_\_\_

How have student's responses changed?



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**TABLE 1. ENERGY SOURCES AND EFFICIENCY**

Refer to the data collected from the class/team worksheets and after analysis write in your final results in the table below. Since the baseline audit, what changes have been observed or made?

<p>1. Since the baseline audit has the school district's use of renewable energy sources changed? If yes, which source(s).</p> <p>_____ solar      _____ wind</p> <p>_____ hydro      _____ geothermal</p> <p>other: _____</p>	<p>_____ Yes    _____ No</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. As events are planned at school, is energy use considered when deciding which rooms or parts of the building to use?</p>	<p>_____ Yes    _____ No    _____ Unsure</p>
<p>5. Looking at exterior windows, are any windows cracked?</p>	<p>_____ Yes    _____ No    _____ Fixed</p>
<p>6. Looking at the exterior windows, do any seals around the windows appear to be broken or missing</p>	<p>_____ Yes    _____ No    _____ Fixed</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    _____ Fixed</p>

\*Products that earn an ENERGY STAR are independently certified to save energy, save money and protect the climate. <https://www.energystar.gov/products/appliances>

**Go to the next page.**



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

1. Were the teams/classes able to use the data to make changes? Explain.
2. What is one action the team/class took to make improvements?

**Go to the next page.**



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POST-ACTION AUDIT, GRADES 3-5



**TABLE 2. CLASSROOM LIGHTING**

Use the handout, *Energy Conservation Calculating Kilowatts, Cost and CO<sub>2</sub>*. 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? This number should be the same as the baseline audit. The same rooms should be audited post-action as were audited for the baseline.	_____
2. What is the wattage used by a classroom during an average school day?	_____ watts Divide by 1000 to convert to kilowatts _____ kilowatts
3. Is this number less than was reported in the baseline survey?	_____ Yes    _____ No    _____ the same
4. Taking all the audited rooms into account, what are the average number of hours lights are left on in the classroom? This excludes, lamps and hanging lights.	_____ hours per day
5. Is this number less than was reported in the baseline?	_____ Yes    _____ No    _____ the same
6. What are the average kilowatt hours (kWh) used by all the classrooms audited?	_____ kWh
7. Is this number less than was reported in the baseline?	_____ Yes    _____ No    _____ the same
8. What is the total cost for lighting in all the audited rooms for one day?	\$_____
9. Is this amount less than was reported in the baseline?	_____ Yes    _____ No    _____ the same

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

1. Do the teams/classes feel classroom lighting is being used more efficiently? Explain.
2. What is one action teams/classes took to make improvements?



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## TABLE 3. ENERGY VAMPIRES

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

Active	Device is on and being used.
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 it is 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 a permission.

**Table 3 should include the same appliances/devices from the baseline audit. In addition the same rooms should be audited to help students construct valid arguments and conclusions.** Consider using a kill-o-watt meter to learn more about the amount 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	SMART board	fish/reptile tank filter and lights
microwave	lamp(s)	refrigerator
diffuser/salt lamp/scent warmer	fan(s)	air pump/compressor
speakers	electronic music equipment (amps, sound systems, radio)	



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

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

Device/Appliance	How many total?	Plugged into wall	Plugged into power strip	Active	Sleep/standby	Off	Unplugged
Example: coffee maker	5	1	4	2		3	1

**Note:** If there are more devices/appliance to report, please add them to the last page or upload a separate document.

**Note:** Why differentiate between devices plugged into the wall and those plugged into a power strip? Did you know that if the classroom devices and personal appliances are plugged in, they are quietly draining electricity all day, every day, even when they are turned off? Using a power strip to turn off electronics and appliances when they are not in use ensures they are truly off and not using extra electricity. (Energy.gov)

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

1. How has student’s understanding of energy vampires changed?
2. What is one action teams/classes took to make improvements? Explain.

