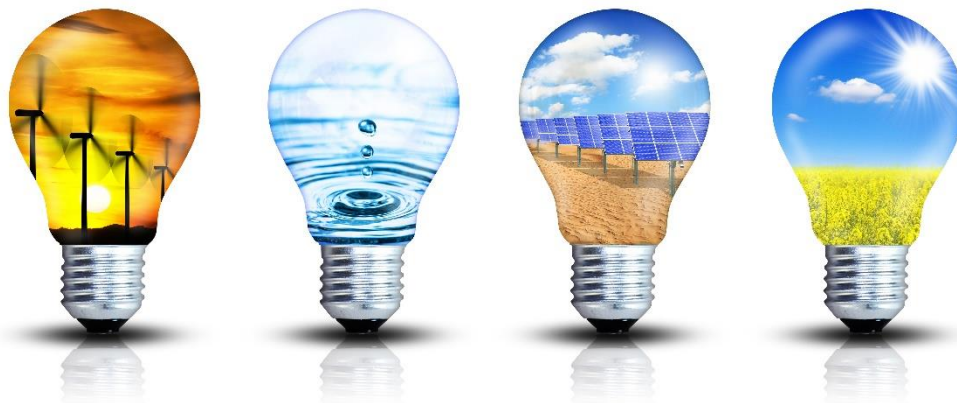




Carbon Calculator Electricity, School Lighting, Energy Vampires, and Other Appliances

Audit each classroom twice: first at the *beginning* of the Challenge to collect preliminary data and then again at the *end* of the Challenge to see whether classrooms successfully met their reduction goals. Use this worksheet to collect all data (or feel free to create your own!), whether from one classroom, grade level, floor, or the entire school. Make as many copies as needed. Enter the sum of all the data into the School Lighting, Energy Vampires, and Other Appliances tab of the Carbon Calculator, where CO₂ emission reductions will be calculated.

Across the United States, [school districts spend more than \\$7.5 billion a year on energy](#). In many municipalities, schools are the largest energy consumer. But up to 30 percent of that energy is used inefficiently or unnecessarily. Look at how energy is used at school and consider actions to reduce energy use and its carbon footprint. One strategy to reduce energy use is simple behavior change - turn off the lights - use natural light when possible, unplug devices and reduce the number of personal classroom appliances, such as coffee makers, microwaves, and mini-refrigerators.





Electricity used by schools for lighting and powering computers, televisions, and other devices contributes to emissions of carbon dioxide (CO₂), a greenhouse gas. Reducing the amount of electricity used can help lower CO₂ emissions. In this part of the classroom audit, you'll take a look at how much energy is being used to light the classroom, power computers and other electrical devices, and also hunt for energy "vampires."

Lighting & Energy "Vampires"

In this part of the classroom audit, take an inventory of the different electric devices and find out whether they are left on in "active" mode overnight, put to "sleep," or turned completely "off." Refer to the table below for a description of the different operating modes. If devices are plugged into a power strip, determine whether the power strips are turned off at the end of the day.

COMMON OPERATING MODES FOR ELECTRIC DEVICES

MODE	
"Active"	A device is on and serving its primary function. (Example: a SMART Board during instruction, or a computer running a program.)
"Sleep/Standby"	A device is in low-power mode. (Example: SMART Board is on, but no one is in class; a computer is on but in power-save/sleep mode.)
"Off"	A device is turned off but still plugged in and ready for action. (Example: SMART Board is turned off, but a remote could be activated to "wake it up." Digital displays will be visible.)
"Power strip/Unplugged"	A device is plugged into a power strip, which is turned off at the end of the day. Or – the electronic device is unplugged. (Example: SMART Board is receiving NO power. The digital display is NOT on and cannot be activated by remote.)



ELECTRICAL APPLIANCES (OPTIONAL)

During the school day, energy "vampires" and other appliances transform into useful tools to help you learn. Nonetheless, you might want to know how much energy they consume during active use. In conducting your audit, look for each classroom appliance's wattage and estimate how many hours each day the device is on. If the wattage is not listed on the appliance, you can still estimate it by finding the current draw (in amperes) and multiplying it by the appliance's voltage. Most appliances in the United States use 120 volts. The amperes might be stamped on the device in place of the wattage. If not, find a clamp-on ammeter – an electrician's tool that clamps around one of the two wires on the appliance—to measure the current flowing through it. You can obtain this type of ammeter in stores that sell electrical and electronic equipment. Take a reading while the device is running; this is the actual amount of current being used at that instant. If you cannot find or measure the current draw, the average wattages for typical classroom equipment are listed in **Section 1: Electricity References**.



CARBON CALCULATOR WORKSHEET: LIGHTING, ENERGY VAMPIRES AND OTHER APPLIANCES

SCHOOL LIGHTING – CLASSROOM NAME/# _____				
SWITCH #	# OF BULBS PER SWITCH	WATTS PER BULB	BEFORE TAKING ACTION (# of hours switch is on, per day)	AFTER TAKING ACTION (# of hours switch is on, per day)
1				
2				
3				
4				

SCHOOL LIGHTING – CLASSROOM NAME/# _____				
SWITCH #	# OF BULBS PER SWITCH	WATTS PER BULB	BEFORE TAKING ACTION (# of hours switch is on, per day)	AFTER TAKING ACTION (# of hours switch is on, per day)
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SWITCH #	# OF BULBS PER SWITCH	WATTS PER BULB	BEFORE TAKING ACTION (# of hours switch is on, per day)	AFTER TAKING ACTION (# of hours switch is on, per day)
1				
2				
3				
4				



ELECTRICITY – ENERGY VAMPIRES – CLASSROOM NAME/# _____									
ELECTRONIC DEVICE	HOW MANY TOTAL?	END OF DAY (check one per device)							
		# ACTIVE (on & performing main function)		# SLEEP/STANDBY (on, ready-for-action but not in use)		# OFF (turned off, but still plugged in)		# POWER STRIP (plugged into power strip & is turned off at end of day)	
		Before Taking Action	After Taking Action	Before Taking Action	After Taking Action	Before Taking Action	After Taking Action	Before Taking Action	After Taking Action
Desktop Computer									
Laptop									
Tablet									
Flat Screen Monitor (LCD)									
Multi-Function Printer									
Speakers									
SMART Board									
Projector									
Coffee Maker									
Personal Microwave									
Personal Mini-Frig									