



# ENERGY INVESTIGATION

Energy may be the most important environmental issue of our time. It affects the quality of our lives every day by powering transportation, communications, lights, refrigeration, and heating and cooling systems.

This Energy Investigation will help you document and evaluate energy use at your school. The results will help you generate ideas to reduce energy consumption at your school, thus making it more environmentally friendly and sustainable.

Answer the questions to the best of your ability and according to the time allotted and the documents and equipment available to you.

**School Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Green Team:**

(Please include administrators, teachers, school staff, students, and parents involved in this investigation.)

Name	Title/Role
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
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_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

**School Population**

Students: \_\_\_\_\_ Staff: \_\_\_\_\_





## Energy Investigation Organization

### A. Building Information, Energy Costs, and Energy Sources

This section includes general questions about the school building, as well as questions about energy costs and sources for the school.

### B. Individual Room Energy Survey

In this section, information is gathered about energy use, lighting, and temperature control for the various types of rooms in the school.

### C. Schoolwide Energy Survey

The information gathered in section B is used to complete section C. In the "Schoolwide Energy Survey," you will also have the opportunity to record ideas for ways the school could make improvements to increase energy efficiency and to reduce energy-related costs.

### D. Education, Training, and Community Connections

This section includes questions about energy-related academic standards, professional development for teachers, community projects, and more.





## A. Building Information, Energy Costs, and Energy Sources

*(This section may require input from your head custodian, facility supervisor, office manager, or school financial officer.)*

1. What year was your school built?

- Before 1950
- Between 1950 and 1975
- Between 1975 and 1990
- After 1990

2. Has the school building been renovated?

- Yes If yes, what year(s)? \_\_\_\_\_
- No

3. Approximately how old is the school's heating, ventilation, and air conditioning (HVAC) equipment?

4. How is the temperature setting for your school controlled?

- Offsite remote control
- One central control in the school building
- Separate thermostats for each room or each group of rooms

5. Does your school follow a routine schedule for servicing HVAC equipment?

- Yes
- No

6. Are furnace and ventilation filters cleaned or replaced on a routine maintenance schedule?

- Yes
- No

7. If your school has central air conditioning, is the outside unit in the shade to increase efficiency?

- Yes
- No

8. Are there trees on the south side of the school building to provide shade during the hotter months?

- Yes
- No

9. Are there trees on the north and west sides of the school building to provide a windbreak in the colder months?

- Yes
- No





10. Obtain a copy of your school's energy bills. Use the bills to answer the following questions. What is the average cost of energy for one month? What is the cost for one year?

	Per Month	Per Year
Electricity	_____	_____
Natural Gas/Oil/Propane	_____	_____
Other: _____	_____	_____

Using the answers above, calculate how much money is spent on energy-related utilities per student. (Total cost of energy per month or per year divided by the number of students.) \_\_\_\_\_

Does the utility bill indicate how much is charged per kilowatt-hour (kWh) for energy?

- Yes If yes, how much? \_\_\_\_\_
- No

11. Which of the following sources provide energy for your school?

You can contact your school's energy providers or use this U.S. Environmental Protection Agency (EPA) website to find out your region's energy sources: [www.epa.gov/cleanenergy/energy-and-you/how-clean.html](http://www.epa.gov/cleanenergy/energy-and-you/how-clean.html). See **How to the Find the Fuel Mix for Your School** found on page 40 for sample printout.

- Coal \_\_\_\_\_%
- Nuclear \_\_\_\_\_%
- Hydroelectric \_\_\_\_\_%
- Oil \_\_\_\_\_%
- Natural Gas/Propane \_\_\_\_\_%
- Wood \_\_\_\_\_%
- Solar \_\_\_\_\_%
- Wind Power \_\_\_\_\_%
- Geothermal \_\_\_\_\_%
- Other: \_\_\_\_\_%

12. Does your school have any onsite renewable energy systems?

- Solar Photovoltaic
- Wind Power
- Geothermal
- Solar
- Other: \_\_\_\_\_

13. **Brainstorm**, and record a list of ways to improve energy efficiency at your school based on the information gathered on the building, energy costs, and energy sources.





## B. Individual Room Energy Survey

Complete this **Individual Room Energy Survey** for each room to be included in the investigation. Then, use the results to help complete the **Schoolwide Energy Survey** that follows. To reduce interruption of instruction, coordinate with classroom teachers to schedule a time to complete this survey.

Make a copy of this **Individual Room Energy Survey** for each room being assessed. Alternatively, sample representative room types, multiply by the number of rooms in that category, and use the data to complete the **Schoolwide Energy Survey**.

Date: \_\_\_\_\_ Room # or Location: \_\_\_\_\_

Teacher or Supervisor: \_\_\_\_\_ Grade or Use: \_\_\_\_\_

Average number of people using the room each day: \_\_\_\_\_

### SECTION B.1. Appliances and Electronic Devices

On the **Appliances and Electronic Devices** chart, record data about the appliances and electronic devices that are found in the room and that use energy. See the instructions that follow.

## Appliances and Electronic Devices Chart

Item	Number of devices in room	Average watts used	Hours used per day	Energy used per day (kWh)	How many of these devices have an ENERGY STAR label?
	A	B	C	$D = B \times C$	E
Computers					
Monitors					
Printers					
Copiers					
Televisions					
DVD/VCRs					
SMART Boards					
LCD projectors					
Other projectors					
Fans					
Heaters					
Small dorm-size refrigerators					
Microwaves					
Other:					
Other:					





## B. Individual Room Energy Survey (cont.)

*Instructions:*

**A–Quantity:** Record the number of each device found in the room.

**B–Average watts used:** Many devices will have a label indicating how much power they use, which often may be found on the back or base or on the power cord. If available, use a watt meter to see how much electricity the devices actually use. Electricity is measured in units of power called watts. The amount of electricity used over a period of time is measured in kilowatt-hours (kWh), which is the energy required to power a 1,000-watt device for 1 hour. You may be able to borrow a watt meter from your local power provider or from your public library.

**C–Hours used per day:** Record the typical number of hours that the device is used each day.

**D–Energy used (kWh):** Calculate the amount of energy the device uses by multiplying the hours used per day times the average watts used.

**E–ENERGY STAR:** Many devices have an ENERGY STAR label indicating that they have been certified as energy conserving. Look for the ENERGY STAR label on each device. Count and record the number with labels.

### Questions on Appliances and Electronic Devices:

1. Do the computers in the room have a sleep mode that allows them to conserve energy when not in use?

- Yes
- No

2. Do the monitors in the room have a sleep mode that allows them to conserve energy when not in use?

- Yes
- No

3. Are the following devices typically turned off when not in use?

a. Computers

- Yes
- No

b. Monitors

- Yes
- No

c. Printers

- Yes
- No

4. Are power strips used with appliances or electronics to make it easy to turn off multiple devices at once?

- Yes
- No





## B. Individual Room Energy Survey (cont.)

5. Do any of the appliances or electronic devices in the room have a phantom load?

(A phantom load is the amount of energy that a device uses while in standby mode or while switched off. Some appliances, such as DVD players and TVs with remote controls, use energy even when they are turned off, because they are not actually off but are in standby mode. Devices with an internal clock, such as a microwave, also carry a phantom load. You can use a watt meter to check for and measure phantom loads.)

Yes

No

If yes, list the types of devices: \_\_\_\_\_

### SECTION B.2. Lighting

Adequate lighting is essential to maintaining a safe and productive learning environment. Lighting may be provided either through natural sources (daylighting), artificial light, or a combination of the two.

**Note:** Because of the difficulty with access, outdoor and stage lighting are not included in this analysis of lighting.

## Artificial Lighting Chart

On the **Artificial Lighting** chart, record information on the types of artificial lighting found in the room, as well as information on bulbs, usage, and energy consumed.

Type of bulbs <sup>1</sup>	Number of fixtures	Number of bulbs per fixture <sup>2</sup>	Average wattage of the bulbs <sup>3</sup>	Average hours "on" per day	Energy Consumed per day (kWh) <sup>4</sup>
	A	B	C	D	$E = \frac{A \times B \times C \times D}{1,000}$
Compact fluorescent (CFL)					
Fluorescent tubes					
Incandescent					
LED					
Other:					

#### Notes:

- For information on lighting types, see **Fact Sheet: Lighting**. You can also ask the school's custodial staff members or building engineer about the types of lighting used in rooms.
- Many light fixtures that use a particular type of bulb take a set number of bulbs per fixture. You can indicate an average number of bulbs per light fixture if this number varies.
- If light bulbs of one type have differing wattage, take an average, or use the most common wattage.
- Calculate the kWh used per day by multiplying the number of light fixtures of each type by the number of bulbs per fixture, the average bulb wattage, and the average time in use per day, and then dividing by 1,000 to obtain the correct units.





### B. Individual Room Energy Survey (cont.)

#### Questions about Artificial Lighting

1. Are lights controlled by motion, photo, or infrared sensors?

- Yes If yes, what type? \_\_\_\_\_
- No

(Photo sensors automatically turn lights on and off depending on the amount of natural light in the room. Motion sensors automatically turn lights on and off based on movement in the room. Infrared sensors automatically turn lights on and off based on body heat.)

2. Are all overhead lights typically on when room is in use?

- Yes
- No

3. If fluorescent tube light fixtures are present, are the ballasts the newer electronic type?

- Yes
- No

(Older light fixtures may still be using the magnetic-type ballasts. A ballast tester can be used to determine the type, or ask a member of your school’s maintenance staff. Electronic ballasts increase energy efficiency.)

#### Daylighting

Daylighting is the illumination of indoor spaces by natural light from windows or skylights. If you have access to a light meter,<sup>1</sup> take the following measurements and record data on this chart. If you do not have a light meter, record “adequate” or “inadequate” on the chart. Standards for adequate lighting in classrooms have been established.<sup>2</sup>

Location	Light quantity with all lights on foot candle (fc)	Light quantity with half of lights off, if possible (fc)	Light quantity with all lights off (fc)	Natural light adequate with ... <sup>3</sup>	
				half of lights off	all lights off
On a desk near the windows					
On a desk in the middle of the room					
On a desk far away from the windows					
In the hallway outside room					
What is the main source of artificial lighting in this room? <input type="checkbox"/> CFL <input type="checkbox"/> Fluorescent tubes <input type="checkbox"/> Incandescent <input type="checkbox"/> LED <input type="checkbox"/> Other (specify): _____					
Weather (sunny, partly cloudy, cloudy): _____					







## B. Individual Room Energy Survey (cont.)

### Notes:

1. A light meter measures the amount of light falling on a surface. Measurements are typically made in units called a foot-candle (fc). You may be able to borrow a light meter from a photography class or photographer. See the **Resources** section for information on where to purchase one.
2. The Illuminating Engineering Society of North America has set standards for indoor lighting. The standards for lighting of a typical classroom should be in the range of 30 to 50 fc, depending on the task being performed. For example, reading very small print or examining photographs will require more light than reading large print or viewing a computer screen. Hallways and lower-use areas can be approximately 25 fc. With daylighting, it may be possible to use fewer lights and ultimately less energy. (Source: [www.iesna.org](http://www.iesna.org))
3. Using the upper bound of the illumination standard (50 fc), enter a yes or no in the columns to indicate whether natural light is adequate.

### Questions on Daylighting

1. Do the light meter readings vary depending on the location within the room?  
 Yes  
 No  
Range \_\_\_\_\_
2. Can the lighting in the room be adjusted to take advantage of natural light when available?  
 Yes  
 No
3. Are any rooms or areas over lit or under lit for the tasks being performed?  
 Yes  
 No  
Explain: \_\_\_\_\_
4. If the weather was cloudy when the daylighting chart was completed, try repeating the measurements on a brighter day. Would you expect the readings to change?  
 Yes  
 No  
Explain: \_\_\_\_\_





## B. Individual Room Energy Survey (cont.)

### SECTION B.3. Temperature Control

After the room has been in use for a couple of hours, use a thermometer (regular or an infrared temperature gauge) to measure and record the room temperature at waist height at various locations. Take several readings at each location described in the **Temperature Readings** chart. Then, calculate an average temperature. Record data on the chart. Indicate Fahrenheit or Celsius units.

### Temperature Readings Chart

Location	Reading 1	Reading 2	Reading 3	Average
On an outside wall near windows				
In the middle of the room				
Far away from the windows				
At or near an air-output vent				
In the hallway right outside the room				
Weather (sunny, partly cloudy, cloudy): _____				
Outside temperature range during the day: _____				

- Do temperatures vary significantly around the room?
  - Yes
  - No
- Do you see any blocked air vents or ducts?
  - Yes
  - No
- Does this room have a thermostat?
  - Yes
  - No
- If the room has a thermostat, is it digital?
  - Yes
  - No
- If the room has a thermostat, is it programmable?
  - Yes
  - No





### C. Schoolwide Energy Survey

Use the data collected on the **Individual Room Energy Survey** sheets to fill out this **Schoolwide Energy Survey**. The information gathered will help you determine ways that the school can make changes to increase energy efficiency and to reduce energy-related costs.

#### SECTION C.1. Appliances and Electronic Devices

Compile the data about small appliances and electronic devices that was gathered from the individual rooms and put that information in the top half of the **Appliances and Electronic Devices Schoolwide** chart. Collect the information for large appliances, and enter it in the bottom half of the chart. See the instructions below the chart.

### Appliances and Electronic Devices Schoolwide Chart

Device	Number of devices in school	Average watts used	Hours used per day	Energy used per day (kWh)	Number of school days per year	Total kWh per year	Total cost per year <sup>1</sup>
	A	B	C	$D = B \times C$	E	$F = D \times E$	$G = A \times F \times \$0.10$
<b>Small appliances and electronic devices</b>							
Computers							
Monitors							
Printers							
Copiers							
Televisions							
DVD/VCRs							
SMART Boards							
LCD projectors							
Other projectors							
Fans							
Heaters							
Small dorm-size refrigerators							
Microwaves							
Other:							
Other:							

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## C. Schoolwide Energy Survey (cont.)

## Appliances and Electronic Devices Schoolwide Chart (cont.)

Device	Number of devices in school	Average watts used	Hours used per day	Energy used per day (kWh)	Number of school days per year	Total kWh per year	Total cost per year <sup>1</sup>
	A	B	C	$D = B \times C$	E	$F = D \times E$	$G = A \times F \times \$0.10$
<b>Large appliances</b>							
Large refrigerators							
Vending machines							
Ice makers							
Dishwashers							
Stoves and ranges							
Ovens							
Clothes washers							
Clothes dryers							
Other:							
Other:							
<b>Totals</b>							

Note: 1. Average electricity cost of \$0.10 per kWh (nationwide average in 2009).

**Instructions:**

**A—Total quantity:** Add up and record the number of devices of each type from the completed **Individual Room Energy Survey** forms.

**B—Average watts used:** Review the completed Individual Room Energy Survey forms. Then develop and record an overall average watts used for each device type. This overall average value can be based on the typical or most common value found on the completed forms. Or you can use the completed forms to calculate a simple or weighted average value.

**C—Hours used per day:** Add up the hours used per day for each device type from the completed **Individual Room Energy Survey** forms, and record the result.

**D—Energy used per day:** Multiply average watts used (column B) by hours used per day (column C). Then divide by 1,000 to get power used per day in kilowatt hours (kWh). Record the result.

**E—Number of school days per year:** Record the number of days per year that your school is in session.

**F—Total kWh per year:** Multiply energy used per day (column D) by number of school days per year (column E) to get the total electricity use while school is in session for each device type in kWh.

**G—Total cost per year:** Multiply the number of devices in school (column A) by total kWh per year (column F) by the U.S. average of electricity cost to get the electricity cost of operating each device schoolwide while school is in session.





## C. Schoolwide Energy Survey (cont.)

### Observations and Conclusions about the Appliances and Electronic Devices Schoolwide Chart

1. Look at column A, Number of devices in school. Which device was the most common? \_\_\_\_\_  
The least common? \_\_\_\_\_
2. Look at column B, Average watts used. Which device had the highest average watts used? \_\_\_\_\_  
The lowest average watts used? \_\_\_\_\_
3. Look at column G, Total cost per year. Which device type had the highest total electricity cost? \_\_\_\_\_  
The lowest total electricity cost? \_\_\_\_\_
4. What other observations and conclusions can you make on the basis of these data?





## C. Schoolwide Energy Survey (cont.)

Tally the answers to the five questions in Section B (see page 12) of the **Individual Room Energy Survey** forms in the chart here.

### Question Tally for Appliances and Electronic Devices Schoolwide

Question	Number of responses				Comments and observations
	Classrooms		Other rooms		
	Yes	No	Yes	No	
1. Do the computers in the room have a sleep mode that allows them to conserve energy when not in use?					
2. Do the monitors in the room have a sleep mode that allows them to conserve energy when not in use?					
3 a. Are computers turned off when not in use?					
3 b. Are monitors turned off when not in use?					
3 c. Are printers turned off when not in use?					
4. Are power strips used with appliances or electronics to make it easy to turn off multiple devices at once?					
5. Do any of the appliances or electronic devices in the room have a phantom load?					





## C. Schoolwide Energy Survey (cont.)

### Observations and Conclusions about the Question Tally for Appliances and Electronic Devices Schoolwide Chart

1. Do the majority of computers have a sleep-mode function? \_\_\_\_\_
2. Do the majority of monitors have a sleep-mode function? \_\_\_\_\_
3. What can you conclude about how often computers, monitors, and printers are turned off when not in use?
  
4. Do the majority of rooms have power strips? \_\_\_\_\_
5. Do the majority of rooms have devices with a phantom load? \_\_\_\_\_
6. What other observations and conclusions can you make on the basis of these data?
  
7. **Brainstorm**, and then record recommendations for ways to reduce the amount of energy consumed by appliances and other electronic devices at your school.



**C. Schoolwide Energy Survey (cont.)****SECTION C.2. Lighting****Lighting Schoolwide Chart**

Compile the data on lighting that was gathered in **Section B.2. Lighting** from the Individual Room Energy Survey forms in the chart below. Record the results and do the calculations. See the instructions after the chart.

Type of bulbs	Number of fixtures	Average hours "on" per day	Energy consumed per day (kWh)	Daily cost for electricity (\$)	Number of rooms with this bulb type as main light source	Number of rooms with adequate lighting throughout the room with...		Number of rooms with "cloudy" conditions during light measurement
						half of lights off	all lights off	
	A	B	C	D = C x \$0.10	E	F	G	H
Compact fluorescent (CFL)								
Fluorescent tubes								
Incandescent								
LED								
Other:								

**Instructions:**

- A – Using the completed Lighting Section of the Individual Room Energy Survey forms for all rooms evaluated in the school, tally all of the individual fixtures of each bulb type, and enter the numbers in the appropriate rows.
- B – Using the completed forms, develop and record an overall average hours "on" value for each bulb type. This overall average value can be based on the typical or most common value found on the completed forms. Or you can use the completed forms to calculate a simple or weighted average value.
- C – Add up and enter the energy usage figures from the completed Individual Room Energy Survey forms for each bulb type.
- D – Calculate the daily cost for using each bulb type schoolwide by multiplying the daily energy use (column C) by \$0.10/kWh, the average nationwide cost of electricity.
- E – Using the completed forms, tally and enter the number of rooms in your school that use fixtures with a particular bulb type as the main lighting source for each bulb type.
- F – Review the completed forms. For each bulb type supplying the main artificial lighting, count the number of rooms in which natural light was adequate at all points inside the room with half of the lights off. Enter the values for each bulb type in the appropriate rows.
- G – Using the same approach as for instruction F, count and enter the number of rooms for which natural light was adequate at all points inside the room with all of the lights off.
- H – Review the completed forms and for each bulb type that supplies the main artificial lighting. Count the number of rooms for which weather conditions during measurement of natural light adequacy were "cloudy."







## C. Schoolwide Energy Survey (cont.)

### Observations and Conclusions about the Lighting Types Schoolwide Chart

1. Looking at column A, Number of fixtures, which fixture was the most common? \_\_\_\_\_  
The least common? \_\_\_\_\_
2. Looking at column D, Daily cost for electricity, which fixture had the highest daily electricity cost? \_\_\_\_\_  
The lowest cost? \_\_\_\_\_ Are these the same answers as in question 1? \_\_\_\_\_  
What can you conclude from this result? \_\_\_\_\_
3. What observations can you make about whether it might make sense to try to do more daylighting at your school?
  
4. What other observations and conclusions can you make on the basis of these data?





### C. Schoolwide Energy Survey (cont.)

Tally the answers to the three questions on Artificial Lighting in Section B.2 of the Individual Room Energy Survey forms in the **Tally of Artificial Lighting Schoolwide** chart.

### Tally of Artificial Lighting Schoolwide

Question	Number of responses				Comments
	Classrooms		Other rooms		
	Yes	No	Yes	No	
1. Are lights controlled by motion, photo, or infrared sensors?					
2. Are all overhead lights typically on when the room is in use?					
3. If fluorescent tube light fixtures are present, are the ballasts the newer electronic type?					

### Observations and Conclusions about the Tally of Artificial Lighting Schoolwide Chart

1. Do most rooms in the school have sensors to control lights? \_\_\_\_\_
2. According to the room tallies, are overhead lights usually on when the room is being used or not? \_\_\_\_\_
3. How common are the electronic ballasts in your school?
4. What other observations and conclusions can you make on the basis of these data?
5. **Brainstorm**, and then record recommendations for ways to increase the energy efficiency of lighting at your school.





C. Schoolwide Energy Survey (cont.)

SECTION C.3. Temperature Control

Using the data gathered from Section B.3. Temperature Control, record the range of temperatures (lowest and highest) for each type of room at the four different measurement points. Then, record the temperature that has been mandated or is required for that type of room by either a building supervisor or classroom teacher or by school district policy (if applicable) while school is in session. Make a comment if the mandated temperature range is different during heating and cooling seasons.

Temperature Readings Schoolwide

Table with 10 rows (Classrooms, Offices, Faculty rooms, Restrooms, Cafeteria, Auditorium, Gym, Locker rooms, Hallways, Library) and 10 columns (Room type, Temperature near outside wall, Temperature in middle of room, Temperature far away from windows, Temperature at air output vent, Mandated temperature range).





## C. Schoolwide Energy Survey (cont.)

### Observations and Conclusions about the Temperature Readings Schoolwide Chart

1. Which room type has the most difference between the lowest and highest temperature readings? \_\_\_\_\_
2. Which room type has the least difference between the lowest and highest temperature readings? \_\_\_\_\_
3. Which room type has the most variability among the temperature readings taken at the different locations in the room? (i.e., near the outside wall, in the middle of the room, away from windows, and at air-output vents) \_\_\_\_\_
4. If the temperature readings vary a lot, what might explain this variability?
5. Are there any cases in which the recorded temperature was outside the mandated temperature range? \_\_\_\_\_  
If so, in what room type(s) did this variance occur? \_\_\_\_\_
6. What other observations and conclusions can you make on the basis of these data?

Tally the answers to the questions on Temperature Control in Section B.3 of the Individual Room Energy Survey forms in the chart below.

### Tally on Temperature Control Schoolwide

Question	Number of responses				Comments
	Classrooms		Other rooms		
	Yes	No	Yes	No	
1. Do temperatures vary significantly around the room?					
2. Do you see any blocked air vents or ducts?					
3. Does this room have a thermostat?					
4. If the room has a thermostat, is it digital?					
5. If the room has a thermostat, is it programmable?					





## C. Schoolwide Energy Survey (cont.)

### Observations and Conclusions about the Tally on Temperature Control Schoolwide Chart

1. Does the temperature in most rooms vary a lot from one place in the room to another? \_\_\_\_\_
2. Is it common to have air vents or ducts that are blocked? \_\_\_\_\_
3. Do most rooms have a thermostat? \_\_\_\_\_
4. Does your school have digital or programmable thermostats in most rooms? \_\_\_\_\_
5. What other observations and conclusions can you make on the basis of these data?
  
6. **Brainstorm**, and then record recommendations for ways to improve temperature control at your school.  
Consider ways to increase energy efficiency.





## D. Education, Training, and Community Connections

You may want to interview the school's personnel who manage environmental policies and professional development. Information about academic standards may be available on school websites.

1. Do your school's academic standards include content requirements for renewable and nonrenewable energy?

- Yes
- No

2. Have the members of your school staff participated in professional development programs and workshops on energy education?

- Yes
- No

3. Does your school sponsor any energy-related projects that help the community?

- Yes If yes, what are they? \_\_\_\_\_
- No

4. Some energy facilities can be used as educational resources for field trips and guest speakers. Which facilities are found in your community?

- Fossil fuel power station  Yes  No; Location: \_\_\_\_\_
- Hydro power station  Yes  No; Location: \_\_\_\_\_
- Geothermal  Yes  No; Location: \_\_\_\_\_
- Wind  Yes  No; Location: \_\_\_\_\_
- Bioenergy  Yes  No; Location: \_\_\_\_\_
- Nuclear  Yes  No; Location: \_\_\_\_\_
- Other: Name and Location \_\_\_\_\_

6. Where is the closest power plant to your school located, and what type of power plant is it (for example, hydro, wind, geothermal, nuclear, coal, or bioenergy)?

7. Does your school have a plan that encourages students and staff members to conserve energy?

- Yes
- No





8. Does your school website and other media outlets, such as newsletters, newspapers, or a TV station, highlight the school's energy-conservation goals, programs, or activities?
  - Yes
  - No
  
9. **Brainstorm**, and record a list of ways to educate others about energy-saving tips and to reach out to your community with energy conservation projects.





## Energy Action Plan

Review the list of ideas that you brainstormed for reducing energy use and increasing energy efficiency at your school. Prioritize the ideas, and decide on a few action projects that could be done to reduce energy use at your school.

List your action project ideas for each section:

### A. Building Information, Energy Costs, and Energy Sources

### C. Schoolwide Energy Survey

#### Section C.1. Appliances and Electronic Devices

#### Section C.2. Lighting

#### Section C.3. Temperature Control

### D. Education, Training, and Community Connections

### Energy Action Project Ideas

Here are just a few ideas to help get you started. Students will come up with many more ideas and you can check out what other PLT GreenSchools! are doing too! Visit [www.plt.org/greenschools-stories](http://www.plt.org/greenschools-stories).

Encourage students across the whole school to get involved by doing these activities and projects:

- Form a student energy patrol to educate others about how students can save energy at school and at home.
- Make posters to inform others about energy-saving practices, such as turning off lights and unplugging appliances when not in use.
- Adjust lighting in classrooms to take advantage of natural lighting.
- Strategically plant trees to reduce the school's energy consumption.
- Insulate windows to prevent drafts and save energy.
- Educate others about the importance of checking classroom air vents to make sure that the airflow around heating and cooling vents is kept clear.
- Adjust the heating or air conditioning thermostat to reduce energy use.
- Encourage the school to use fluorescent lights if this change has not been implemented.
- Encourage the school to install vending machine misers to save energy.

