

US EPA ARCHIVE DOCUMENT



STUDENT ACTIVITY #3

A Simple Energy Audit

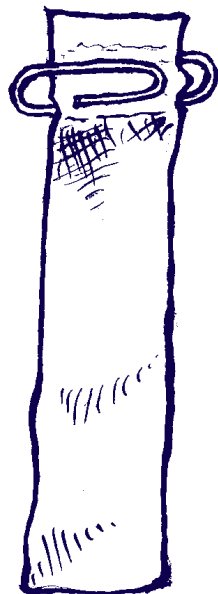
Purpose: This audit will encourage you to examine your classroom and identify ways in which you can help conserve energy.

Time required: 20–45 minutes

Equipment:

- This worksheet
- a pencil
- a paper clip
- a small piece of lightweight paper (such as tissue paper), approximately 1" across and 3" long, that hangs on a paper clip (see drawing)

Introduction: We spend much of our day in school. But few of us notice details about buildings, such as windows and thermostats. We also pay little attention to the small actions that each of us does—such as turning lights on and off—that affect energy use. These actions are important not only because they contribute to our comfort, but also because the use of energy to heat, cool, and provide lighting in school buildings increases the cost of operating our schools.



An energy-efficient school is more comfortable than one that is not energy-efficient, and it needs less oil, natural gas, coal, or electricity for heating or cooling. A building that is badly designed or poorly maintained is expensive to operate because it is trying to heat or air-condition the outdoors as well as the indoors.

The following activity will teach you to conduct a simple energy audit. By conducting this exercise, you will point out areas that could be improved and save energy, which means saving money and making you more comfortable. You will learn about things that you and your classmates can do to save energy.

You will conduct an audit inside your classroom.

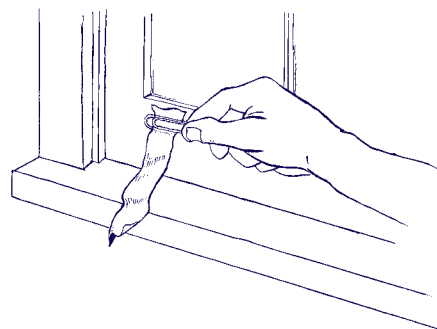
Audit: Inside Your Classroom

1. Where is the thermostat located?
 - A. It should be located on inside walls, away from a bright light source (such as sunlight) or a heating or air conditioning vent. Is it? ____ yes ____ no
2. What setting is the thermostat reading?
 - A. It should be set at 68 degrees Fahrenheit in winter or 78 degrees Fahrenheit in summer. Is it? ____ yes ____ no
3. Do you have windows in your classroom? Answer these questions, if you have windows.
 - A. Does your classroom have window coverings that allow you to block out intense sunlight during hot days? ____ yes ____ no



B. Take the small piece of paper and paper clip you made. This is a “draft detector.” Walk up to the window, and hold the piece of paper at four different spots along the edge of the window, where the window meets the wall. Hold it still for about 30 seconds in each spot. Be sure to get really close to the window, if you can do it safely, and make sure that the heating vents aren’t blowing the paper.

C. Does the paper move? Can you feel warm or cold air coming in through the window? If you can feel air move, the windows are not energy-efficient. Are your windows energy-efficient?
_____ yes _____ no



4. Now take your draft detector to your classroom door. (If you have a door to a hallway and a door to the outside, do this activity with both doors.)

A. Place the detector along the sides of the inside of the door, where it meets the walls, and along the floor. Do you detect any air moving through the cracks between the door and the wall or the floor? If you can feel any air moving, your door is not energy-efficient. Is your door energy-efficient? _____ yes _____ no

B. Place the detector along the sides of the outside of the door, where it meets the walls, and along the floor. Do you detect any air moving through the cracks between the door and the wall or the floor? If you can feel any air moving, your door is not energy-efficient. Is your door energy-efficient? _____ yes _____ no

5. Does your classroom have a floor covering, such as carpeting? _____ yes _____ no

6. How high is your ceiling? (Use caution when trying to determine this.) Is it 8 feet or less? _____ yes _____ no

7. If you can safely open the air conditioning or heating unit in the classroom, do so, and look at the filters. Are they clean (little dust or dirt, not clogged)?
_____ yes _____ no

8. Are the light bulbs used in your classroom energy-saving bulbs? (You might need to ask your facilities manager this question.) _____ yes _____ no

9. Are all the desks and chairs away from heating or cooling vents? _____ yes _____ no

10. Now we will look at some of your personal activities in your classroom that affect energy use.

A. Do you wear clothing that is appropriate for the season, such as sweaters in the winter and lightweight clothes in the summer? _____ yes _____ no

B. Do you turn off the lights if you are the last one out of the room?
_____ yes _____ no

C. Do you avoid putting your textbooks, notebooks, etc. on top of heating or cooling vents? _____ yes _____ no

continued

STUDENT ACTIVITY #3: A SIMPLE ENERGY AUDIT

If you answered “yes” to most of these questions, your classroom is doing well. But if you said “no” to three or more, you need to work with your teacher, facilities manager, or other adult to improve these areas.

Here’s why your answers matter:

1. If your thermostat is located too close to a strong light or heat source, it will not properly measure the room temperature, which means that energy will be wasted because the heater or air conditioner runs more than it needs to. It also could mean that you are uncomfortable in your classroom, because if the thermostat is near a source of heat or air-conditioning, it will turn off well before the entire room is heated or cooled.
2. If your thermostat is set too high in winter or too low in summer, you are wasting energy. Ask the person responsible for energy management in your school to check your thermostats and make sure that they are working properly.
3. If your windows do not have the ability to block out intense sun, your air-conditioning costs are too high, or your comfort level is lowered (because the room cannot cool down). If you see or feel air moving through the edge of the window, this means you are losing energy from your classroom, and the windows need to be caulked, sealed, or covered by a storm window system.
4. Your draft detector has helped you to determine whether your door is energy-efficient.
5. Carpeting helps keep rooms more comfortable and conserves heat.
6. Ceilings higher than 8 feet waste energy, because warm air moves to the top of the room instead of remaining near the floor where we are.
7. Clean filters conserve energy by allowing the unit to run efficiently. Dirty filters waste energy.
8. Energy-saving bulbs are more expensive to buy but save lots of money on electricity in the long term.
9. If furniture blocks heating or cooling vents, the furnace or air conditioner will insufficiently heat or cool the room.
10. When you wear clothes that are appropriate for the weather, you require less energy to keep warm or cool. Keeping lights on when you do not need them wastes energy. Again, if objects block heating or cooling vents, the furnace or air conditioner will insufficiently heat or cool the room.

