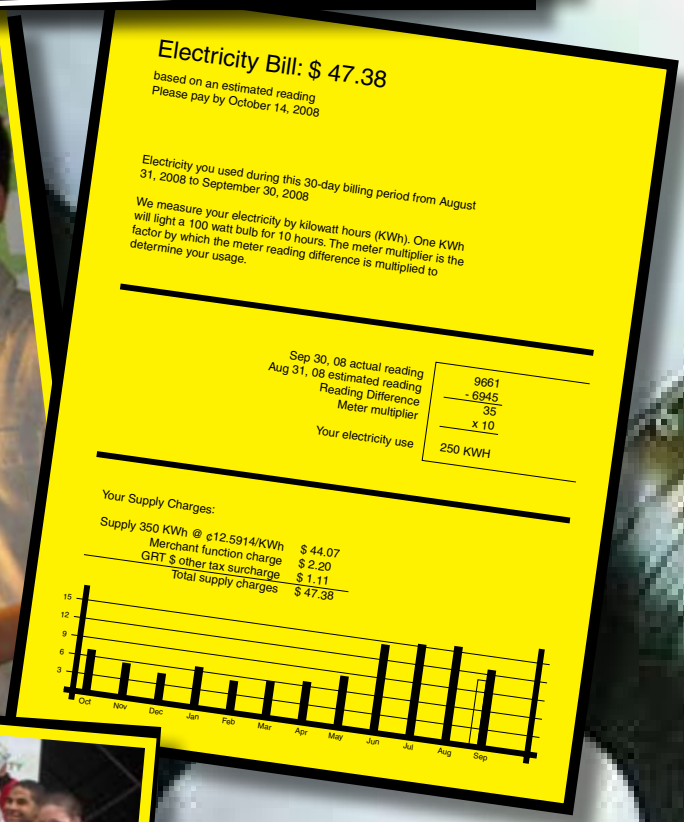
"The state of the environment will be handed down to my generation. It's our problem to solve. If we don't fix it, future generations will see us as the generation that didn't do enough. I don't want to be a part of that. I want to be a part of the generation that did something."

Avery Hairston, Founder, RelightNY



Electricity Bill: $ 47.38

based on an estimated reading
Please pay by October 14, 2008

Electricity you used during this 30-day billing period from August 31, 2008 to September 30, 2008

We measure your electricity by kilowatt hours (KWh). One KWh will light a 100 watt bulb for 10 hours. The meter multiplier is the factor by which the meter reading difference is multiplied to determine your usage.

Sep 30, 08 actual reading	9661
Aug 31, 08 estimated reading	- 6945
Reading Difference	35
Meter multiplier	x 10
Your electricity use	250 KWH

Your Supply Charges:

Supply 350 KWh @ ¢12.5914/KWh	$ 44.07
Merchant function charge	$ 2.20
GRT $ other tax surcharge	$ 1.11
Total supply charges	$ 47.38

In a national survey on youth attitudes toward the environment,* 79% of teens nationwide agree that it's their responsibility to help save the planet. Teens believe there is still time to repair the damage done to the environment: 73% in New York and 80% nationally agree. And teens see themselves as part of the problem as well as the solution—83% agree that if someone showed them how they could save the environment, they would do it, if it was easy.

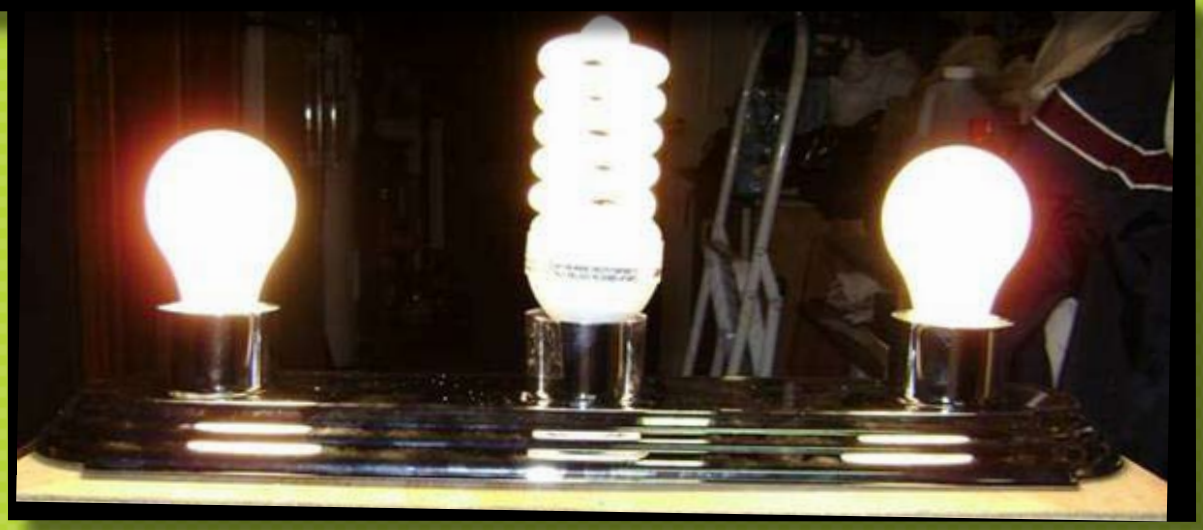
Well, **it is easy!** You can change the city by changing your light bulbs.

Read on to learn more about how you can make a small change and have a big impact.

* Survey conducted by JWT in January 2007

Create a light box to see for yourself how cool CFL bulbs are!

(Or to show all of your friends how cool they are)



Did you know that CFL bulbs are actually cool to the touch? It's true! The way CFL bulbs work to produce light is very different from incandescent bulbs—and much more efficient.

Why are incandescent light bulbs so hot? The reason is that most of the energy spent creating heat is wasted because only a small amount of the heat produces light. Most of the heat escapes through the glass bulb.

The way a standard light bulb works is this: electricity runs through the very thin wire (called a tungsten filament) to turn electrical energy into heat. The filament glows because of the heat—it incandesces to produce light. The tungsten filament gets to a temperature of about 4500˚F (2482˚C). The heat is enough to make the filament white hot, and the "white" part is light that we use. Incandescent bulbs are therefore very inefficient, wasteful and very hot.

A fluorescent bulb produces less heat, so it is much more efficient. In fact, it is four times more efficient, lasts up to 10 times longer, and uses 75% less energy than an incandescent light bulb.

So, want to test it and prove it to all of your classmates and friends? You can make a light box, and plug it in.

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Click here for the steps on how to make a light box

Another cool thing about the light box is that you can use it to show others how CFL bulbs produce light that is the same quality and warmth as incandescent bulbs.

Build a light box to educate your classmates, friends and neighbors on how the incandescent bulb works.

Now that you know that changing from incandescent bulbs to CFL bulbs is an easy way to reduce carbon emissions, here are some other topics to research:

- Where does electricity come from? How does it get to your house?
- How does electricity usage create or impact acid rain?
- How does using less energy impact our environment?
- What is a carbon footprint? How can you reduce your carbon footprint?

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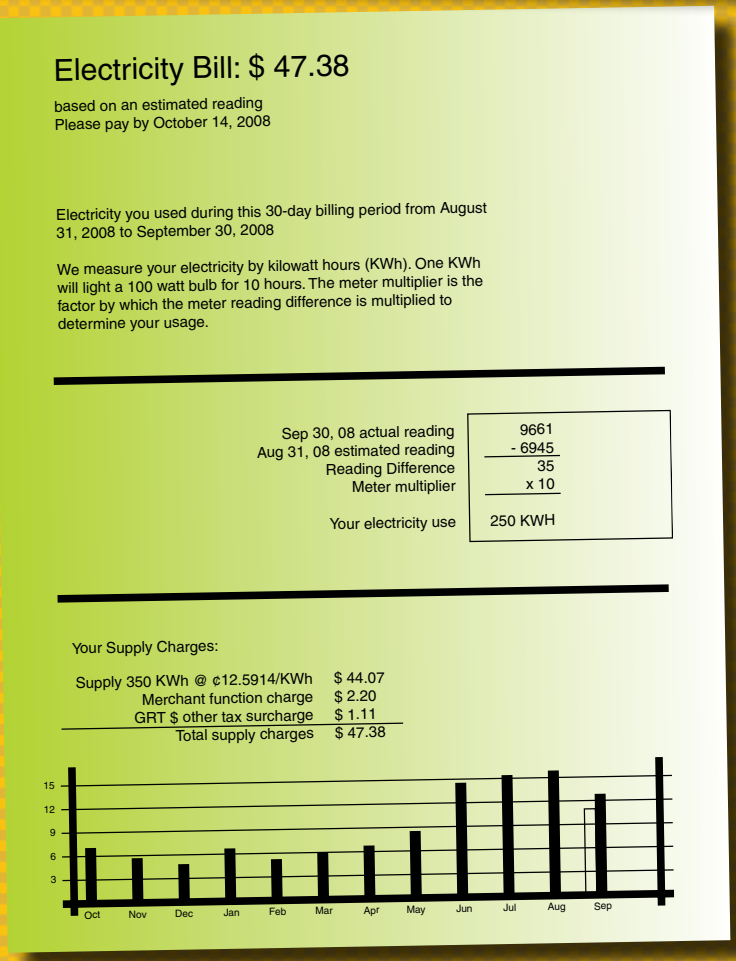
Challenge your family to use less electricity!



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Have you ever looked at your family's electricity bill? Ask a parent or guardian for a copy. Have a look at how many kilowatt hours you used last month. You'll find a graph with this detailed information about your usage this month, and your usage at this time last year or month.

Look at the graph to see your energy usage this year. The filled-in bars show you how much electricity you are using in this current year, and the empty bar shows you how much energy you have consumed at the same time last year.

Find this month, read along the left side of the graph to find out how many KWhs you are using. Has your electricity usage gone up or down? Challenge yourself to keep track of the usage marked on your bill and reduce the amount of energy used in the month.

Energy Challenge: Keep track of the KWh on a spreadsheet and make your own energy graph to show how low you can go!

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Teacher Page

Objectives:

Student will discuss their ideas and opinions related to global warming and conserving energy
Students will read article related to energy costs and consumption
Students will teach classmates about specific alternative and renewable energy sources

Vocabulary:

Fossil Fuels: Fuel made up of the remains of organisms preserved in the Earth's crust with a high hydrogen and carbon content.
Global Warming: An increase of the average temperature of the Earth.
Greenhouse Effect: The effect that is produced when greenhouse gasses trap the solar radiation in the Earth's atmosphere and warm the planet.
Renewable Energy: Energy resources that can be made again in a short period of time. Sun light and wind are examples of renewable energy.

Materials:

Chart paper or chalk board
Butcher paper- large enough for every student in the school to sign
Index cards
Markers
Tape
1 Shoebox per student
Batting
String
Glue
Stapler
1 Thermometer per student (*note: newer, digital fever thermometers may shut off after one minute)
Lamp or floodlight
Dirt
Leaves
Tin foil
Plastic wrap
Reflection form for each student

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Background:

Did you know that the average home produces more CO2 gas than the average car? Americans are depleting our primary source of energy- fossil fuels- at an alarming rate. Some say that if usage continues at the current rate, the fossil fuel supply could be gone before the end of this century. In addition to the cost and supply issues, scientists have long warned of the environmental damage caused by burning fossil fuels. Our goal should be to use and develop alternate forms of energy to help us power our homes, automobiles, and businesses without destroying the Earth's environment.

We must also look at alternative ways of conserving the energy that we use. Did you know that fiberglass, a commonly used insulation for homes and buildings, is full of toxins and not biodegradable?

Scientists, builders and engineers are looking for a green alternative, and in Hackensack NJ, they have found an interesting solution. Jeans! Scientists discovered that denim was not only an excellent biodegradable insulation material, it also serves as a great sound barrier. In fact, 98% of the Women's and Children's Pavilion at Hackensack has scraps of denim blue jeans in its walls serving as insulation. Blue jeans insulation is biodegradable and safe for the environment.

In this lesson students will experiment with alternative ways of insulating homes as a way to conserve energy.

Lesson:

Explain to students that homes and buildings with good insulation don't use as much energy to keep the rooms cool in summer and warm in the winter. It is important to have good insulation if you want to keep energy consumption and costs down. But fiberglass, the most widely-used insulation, is not biodegradable and is coated with the toxic materials; asbestos and formaldehyde.

Introduce the lesson by writing the words fiberglass, asbestos, and formaldehyde on the board or chart paper and put a big circle around them.

Have students discuss thoughts and opinions that come to mind when they hear these words. Guide them with questions such as "Would you want to breathe these substances in? "Do you want them in your homes?" What do you think these substances do to the health of the workers who install it?" "What are your thoughts and feelings? What have you seen or heard about these substances?"

Keep track of students' thoughts in a semantic web on the board or chart paper.

Then take out the shoeboxes and scraps of cotton batting, tinfoil, soil, leaves and any other material that you think would make good insulation. The shoebox will represent a house and the different materials will wrap it around like insulation.

Explain to students that they are going to be engineers of the future and experiment with using different materials as insulation. Their goal is to make note of what materials are the most successful at keeping the house cool.

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To carry out the experiments students will work in pairs with one shoebox and one type of material.
The first step is to create a baseline temperature. As a whole group, place the thermometer inside the uninsulated box and shine the light on it for fifteen minutes. Take the thermometer out and read the temperature. This will be the baseline temperature that the teams will work to beat when they insulate their boxes.
Next, allow the students to work in pairs on insulating their boxes. They must be sure to cover the entire box with the material, including the lid. Make sure that the box will be able to close so that the thermometer can measure the temperature.
After the box is covered, students will place a thermometer inside the box, close the lid and shine the light directly on the box, like the sun would shine on the house for 15 minutes and record the temperature.
Did the box stay cooler with the material they chose as insulation? Why or why not? What material was the most successful?
Have students write a paragraph about how the proper insulation can save energy, and how properly insulating a home protects the environment.

Service Project:

The Environmental Pledge Wall. Choose a previously designated wall in the school that all students will walk by and see every day.
Students will create a pledge wall by writing an environmental pledge on butcher paper or construction paper and hanging it up for all to sign. Have students work together as a class to create a pledge to cut electricity usage as the main ways to help the environment.
First, students will need to write the pledge. You may want students to think about what it means to pledge or promise loyalty and allegiance to a cause they believe in.
Students will write a pledge promising to be true to the environment in groups of four or five.
Students should think carefully about the words in the pledge. Remind them that they are promising to be true to a cause. They may decide to pledge to switch to CFL bulbs, turn off the lights and remind others to do the same, and unplug unused chargers and other equipment.
After the groups are finished writing, give them time to share out what they have written.
As a whole class students will create a pledge for the entire school using the best parts of each small group's pledge.
When the pledge is finished, it should be transferred to the butcher paper and taped to the wall that was chosen. Other students may sign the butcher paper around the outside of the pledge, or they may choose to decorate their own index cards, sign them and affix them to the pledge wall.

Reflection:

Give students some time to think about what they've learned and then have students report back one thing that was surprising to them about what they've learned about insulation and electricity consumption.

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