

# Take Action



Avery needs your help! He is a concerned New York City teen who is acting now to help stop the environmental problems that his generation will inherit. How can kids help the environment? Well, Avery got a group of his friends together and they started a movement called **RelightNY**.

Avery and his classmates have worked hard to educate their neighbors on the benefits of an energy-saving light bulb called a Compact Fluorescent Lamp (or **CFL** bulb). Together the boys have changed over 30,000 incandescent bulbs to energy-efficient **CFL** bulbs. It's a great start, but now Avery needs you! **Look inside to learn how you can help.**

# Scavenger Hunt

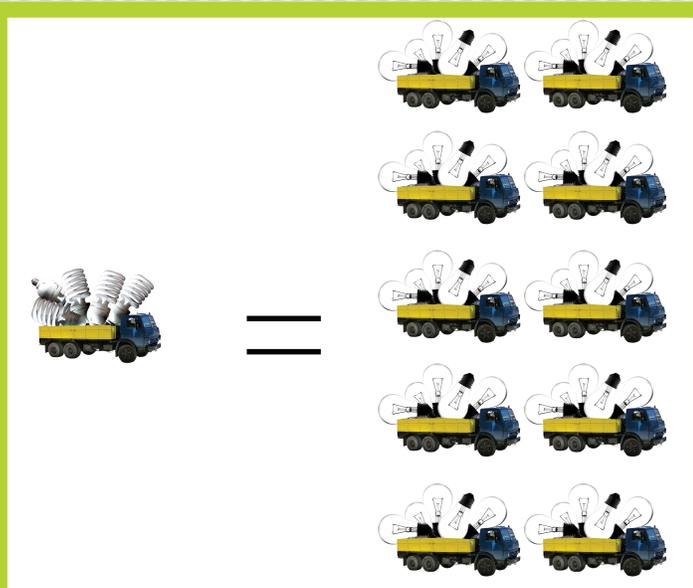


Switching to a CFL bulb is something that kids can do right now to help save our planet. CFL bulbs use 75% less energy than other light bulbs. Switching from an incandescent to a CFL is a great place to start.

**Take Action!** Do you know how many light bulbs there are in your classroom? In your school? At home? Do you notice them anywhere else in the city? Get ready, it's time to be aware!

**Directions:** First you'll need a piece of paper and pencil so that you can write down how many light bulbs there are in the classroom. Then with a partner, go out and look around the school for light bulbs. Total the number of light bulbs you've counted, then do the math for energy savings.

# CFL bulbs last 10 times longer!



Think about how many hours the lights are on in a day, then divide by four to learn how much money and energy could be saved with CFL bulbs.

Did you know that for every 10 incandescent bulbs, only one CFL bulb is used? That means for every 10 burnt-out incandescent bulbs in a landfill, there is only one CFL bulb to recycle. And for every CFL bulb you buy, you'd have to buy 10 incandescent bulbs.

Let's do some calculations: If one bulb equals ten incandescent bulbs, that's:

- less packaging
- less transportation and shipping
- less money spent

**Challenge:** Now see if you can come up with three more ways that CFL bulbs are good for our environment.

**Directions:** Do the math. To find out how much money you can save with a CFL, add up the number of light bulbs in your home. Then fill out the chart.

Number of Incandescent bulbs	One cent per hour of use	Hours used in a day	Total cost for a day	Divide by four for \$ saved with CFLs
At school				
At home				

**Challenge:** Can you figure out how much money you would save in a year? Now go out there and convince people to save!



# Teacher Page



## Objectives:

The focus of this learning activity is on energy awareness and conserving electricity.

Students will be able to answer the following questions:

- Why do we want to conserve energy?
- How can we conserve energy?

Students will be able to explain what energy efficiency means.

Students will be able to discuss ways to save energy at home.

**Vocabulary:** Atmosphere: All of the gases surrounding the Earth that help make life possible.

Conserve: Using energy without waste.

Efficient: Using less energy to do something as well as before or better.

Fuel: A material such as wood, coal, gas or oil burned to produce heat or power.

Incandescent: Glowing with heat.

Fluorescent: Giving off a certain kind of light.

Filament: A thin wire conductor in the bulb that is heated white hot by the passage of an electric current.

The atmosphere is .03% carbon dioxide. More than this can be harmful to the Earth. **RelightNY** is a program that empowers youth to contribute to the fight against global warming. When we use **CFL** bulbs and encourage others to do the same, we spread awareness about environmental issues so that more people understand the benefits of using less energy.

Switching to **CFL** bulbs reduces the amount of energy we use and the carbon emissions we produce. Incandescent bulbs create light by producing heat. But only 10% of the energy produced creates light. This means that incandescent bulbs are a very inefficient way to produce light.

A fluorescent bulb produces less heat and just as much light, so it is much more energy-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.

### **Lesson:**

Hold up the **CFL** bulb in one hand and the incandescent bulb in the other. Using a show of hands, have students predict which bulb will be hotter. As a group, have students make observations about the filament and what similarities and differences they can see in the light bulbs before they are turned on. Make note of the students' predictions on the board.

### **Materials:**

Standard incandescent light bulb, 60W

Compact fluorescent light bulb, 13W

Lamp

Thermometer

Watch or clock with a second hand

1. Explain that students will be measuring the difference in temperature between a **CFL** bulb and an incandescent bulb.
2. Make sure the lamp is turned off, then plug in the lamp and screw in the **CFL** bulb.
3. Turn the lamp on and observe the light. Then hold the thermometer five or six inches away from the bulb for 60 seconds. (You may want to take student predictions while you wait.) Read the temperature. Record your results on the board.
4. Follow the same procedure with the incandescent bulb.
5. Let the bulb cool before unscrewing it from the lamp.

Ask students to check their predictions. Did one light bulb produce more heat than the other? Which one? Do the students think one light bulb will use more energy? Which one and why? Have students write a paragraph explaining their predictions. Were they correct? What happened?

### **Service Project:**

For the service project, students will make posters to hang in their school and classroom to educate and inform their peers on the impact of using **CFL** bulbs. They may want to use the following facts to inform and empower:

- **CFL** bulbs match the light quality of the energy-wasting incandescent bulbs.
- **CFL** bulbs use 75% less energy than incandescent bulbs.
- **CFL** bulbs last up to 10 times longer than standard light bulbs.

- If every kid swapped one **CFL** for one incandescent bulb, we could prevent more than 30 billion pounds of greenhouse gas.
- One tree can absorb the amount of CO<sub>2</sub> released by a car that's been driven for 4,000 miles. Switching to a **CFL** bulb is something that kids can do right now to help save our planet. **CFL** bulbs use 75% less energy than other light bulbs. Switching from an incandescent bulb to a **CFL** is a great place to start saving energy.

### **Reflection:**

Students will keep an Electricity Journal. For one week, they will keep track of every time they use electricity. Kick off the reflection by having students think about the electricity they use in the morning before school. Students can keep track of how many hours the TV was on. How many lights were on in their homes? Were any rooms empty?