



## THE AIR AROUND US

### OVERVIEW

In this lesson students will learn how using electricity causes air pollution. Students will examine ways to save electricity and create a Save Electricity Tips sheet. They will initiate the energy saving tips at home and compare two electric bills to determine how much energy they saved.

### GRADE LEVEL

Third Grade

### OBJECTIVES

Students will do the following:

- Actively listen to audio information using Internet resources
- Investigate ways to save electricity at home
- Read a graph to obtain information
- Create a class Save Electricity Tips sheet
- Analyze the results of their energy saving efforts

### SUBJECT AREAS

Science, Math, Language Arts

### INTERNET LINKS

Bookmark the following Web sites:

- [EekoWorld](http://pbskids.org/eekoworld) <http://pbskids.org/eekoworld>
- [Electricity Generation Fact Sheet](http://www.eia.doe.gov/neic/infosheets/electricgeneration.htm) <http://www.eia.doe.gov/neic/infosheets/electricgeneration.htm>
- [Cleaner & Greener Pollution from Electricity Calculator](http://www.cleanerandgreener.org/resources/calculators.htm) <http://www.cleanerandgreener.org/resources/calculators.htm>
- [Cleaner & Greener Home Checklist](http://www.cleanerandgreener.org/programs/households/homechecklist.htm) <http://www.cleanerandgreener.org/programs/households/homechecklist.htm>

### MATERIALS

- Paper
- Learning logs

### BUILDING BACKGROUND

This activity may be completed in the days leading up to the main activity.

#### Activity One: Exploring EekoHouse

Visit the Air section of the EekoWorld Web site. View the site with your students, and discuss how using electricity causes air pollution. You may also visit the EekoHouse to examine ways to save electricity in a house.



## STEPS

### Activity One: Electricity and Air Pollution

#### Step 1

Show students the Fuel Source for U.S. Electricity Generation graph from the Electricity Generation Fact Sheet Web site. Ask students to identify the largest fuel source (coal) for electricity generation. Discuss how the burning of coal to generate electricity causes air pollution.

*Teacher Note: You may choose to use this graph to practice students' graph-reading skills. You might ask students questions such as how many billion kilowatt hours are generated by natural gas, or how many sources generate less than 500 billion kilowatt hours.*

#### Step 2

Tell students that they are going to investigate ways that their family can save electricity. Ask each student to complete the following activity as a homework assignment:

Collect five examples of things that people can do to save electricity in their homes. You may collect this information from a variety of sources, i.e., EekoHouse, parents, the Internet, phone calls to local experts, etc.

#### Step 3

After students have gathered the information, divide the class into small groups. Ask the groups to discuss the tips on saving electricity that they gathered. Tell students to compile one list that incorporates all of their tips and eliminates duplicate ideas. Have the groups share their ideas with the entire class. Record the tips on the board or a piece of chart paper. Ask for a volunteer to type the tips into a Save Electricity Tips word document and make a copy for each class member.

*Teacher Note: The Cleaner and Greener Web site contains a calculator that determines how much pollution is caused by a household's electricity use. You may choose to visit the site and enter in a family's electric bill to see how much pollution was caused by their electrical use. You may want to use your own electric bill or ask for student volunteers to bring in their families electric bill totals.*

### Activity Two: Comparing Electric Bills

#### Step 1

Tell students to ask their parents for the total number of kilowatt-hours listed on their families' last month's electric bill. Ask students to write the amount on a piece of paper and bring it to school.

#### Step 2

Total the kilowatt-hours that you collected from the students. Then plot the total amount on a graph and display it on the classroom wall. Explain to students that they are going to share the Saving Electricity Tips sheet with their families. Tell students to explain the assignment to their family members and ask for their help. Suggest that they hang the tip sheet in an area where all of their family members can see it. Tell students that they will compare the total kilowatt-hours on next month's bills (after a month of shutting of lights, toys, machines, appliances, and lowering the thermostat, etc.) to the number of kilowatt-hours they used on the first bill.

#### Step 3

Ask students to keep a learning log during this month. The learning log will contain these items:

- A graph showing the number of kilowatt hours on your family's electric bill
- Three entries per week on what you did today to save electricity in your house
- A drawing or photograph of polluted air and your thoughts and feelings about polluted air
- A drawing or photograph of clean air and your thoughts and feelings about clean air
- Five facts about the properties of air
- Five facts about air pollution
- Thoughts on why clean air is important



LESSON PLAN



**Language Arts**

**Standard 1.** Uses the general skills and strategies of the writing process

**Level II [Grade: 3-5]**

6. Uses strategies (e.g., adapts focus, point of view, organization, form) to write for a variety of purposes (e.g., to inform, entertain, explain, describe, record ideas)

**Standard 4.** Gathers and uses information for research purposes

**Level II [Grade: 3-5]**

8. Uses strategies to compile information into written reports or summaries (e.g., incorporates notes into a finished product; includes simple facts, details, explanations, and examples; draws conclusions from relationships and patterns that emerge from data from different sources; uses appropriate visual aids and media)