

Utility Bill Organizer

Grade Level: 3-8

Lesson Overview: Students will learn about the cost of utilities at home. Students will find out information about where their home energy comes from and make a comparison of cost and use.

TEKS:

Math: 3.3(B), 3.14(A,B,C), 3.15(A), 3.16(A,B), 4.13(C), 4.14(A), 4.15(A,B), 5.5(B), 5.9, 5.13(A,B,C), 5.14(A), 5.15(A,B), 6.4(A), 6.7, 6.10(A,C,D), 6.11(A), 6.12(A), 7.4(B), 7.7(A,B), 7.13(A), 8.4, 8.5(A), 8.12(C), 8.14(A)

Science: 3.2(E), 3.3(B), 4.2(E), 4.3(B), 5.2(E), 5.3(B), 6.2(E), 6.3(B), 6.9(B,C), 7.2(E), 7.3(B), 8.2(E), 8.3(B),

Social studies: 3.7(A,B,C), 3.8(B,C), 3.16(E), 3.17(B), 4.5(A), 4.14(B), 4.22(C,D), 4.23(D), 5.13(A), 5.25(C,D), 5.26(D), 6.9(A,B), 6.21(C,D), 6.22(D), 7.20(D), 7.21(A,B,C,D,E,F,G), 7.22(C,D), 8.30(A,B,C,D,E,F,G), 8.31(C,D)

Art: 3.2(A,B,C), 4.2(A,B,C), 5.2(A,C), 6.2(A,C), 7.2(A,C), 8.2(A,C)

Time: Activity 1, 30-50 minutes; Activity 2, 30 minutes per day over a week

Materials: 1 sheet cardstock per student, graph paper, old magazines for collage artwork, glue sticks, promotional materials for utilities in your area

Vocabulary: utility, bill, organize, kWh, power generation



Background Information:

We use energy for everything and could not make it through a single day without it. But we rarely even think about how much we use, what kinds of energy there are, the cost, or the pollution consequences. The place to start is by adding up our own household energy use and comparing it to the national average.

A simple utility organizer will help show what sources of power you are using to produce your electricity, the cost of natural gas over time and how much energy you are using.

Household and transportation energy costs are over \$2,500 per year for an average American family. The average American family spends \$1,338 on household energy or \$111.50 per month, and spends \$1,234 for vehicle fuel expenditures per household for an average of 572 gallons of gasoline per vehicle.

Setting the Stage:

Ask students to find pictures of items that represent energy. Have some students explain their choices. Ask if any students know the name of the company their energy comes from. Ask if any know the source of the power generation that makes up that energy.

Activity 1: Utility Organizer-Collage

Have students find pictures in magazines that represent energy use to them. It could be pictures of appliances, electric wires, light bulbs, waterfalls, pollution, etc. Students then glue their pictures to both sides of the cardstock forming a collage. Allow to dry over night before continuing.

Activity 2: Utility Organizer-Information

Give students packets of information from the electricity companies that they may be using at home. This information can be found on the Electricity Facts Label for each utility. The Texas Power to Choose website, <http://www.powertochoose.org/partners/index.htm>, allows you to put your local zip code in and will provide you with the companies and fact

labels for your area. Have your students find the resources used to generate power for their chosen electric company (hopefully the one they use at home). Draw, and decorate a pie chart describing the resources used and attach this to the collage under the heading Electricity.

Make a line graph using natural gas prices over the last year. The Department of Energy website has average pricing for the state for the last few years listed, http://www.eia.doe.gov/emeu/states/ngprices/ngprices_tx.html. Cut out the line graph (be sure all the axes are labeled and there is a title) and attach this to the collage under the heading Gas.

Create a bar graph to be filled out by the students each month based on their home energy use. This will allow the student to track the energy use in their own home. You may want to show them a filled out graph and have them discuss why peaks happen when they do. Attach this to the collage under the heading My Energy Use.

Discussion:

1. What do the peaks in the natural gas prices signify? What can you do during those times to lower your total bill?
2. Why do you have a choice in electric companies? Why should you?
3. What differences were found in the resources used to generate power?
4. Which company would you chose and why if given the chance?

Extension:

Invite a representative from a local utility to come speak about the power used to generate electricity in your area. Write a persuasive letter to your parents explaining why they should change (or keep) the electric company they have.

Resources:

<http://www.powertochoose.org/partners/index.htm>

http://www.eia.doe.gov/emeu/states/ngprices/ngprices_tx.html

