



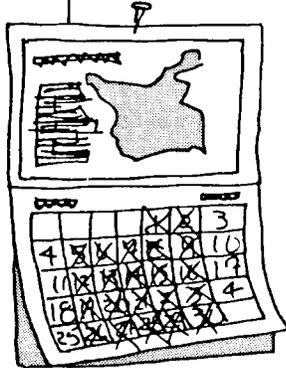
How much does it cost to light your school?

Materials

Pencil and paper
Classroom with
fluorescent bulbs
Chalkboard and colored
chalks

OR

Newsprint pad and
felt-tipped markers



First determine how much electrical energy it takes to light your classroom for 1 hour, then compute the cost. Record this amount on the table below.

| | | | | |
|---|---|-----|---|---|
| Number of tubes in your classroom | × | 3¢* | = | Cost per hour to light your classroom |
|---|---|-----|---|---|

Then, compute how much it costs to light your classroom for 1 day. Record below.

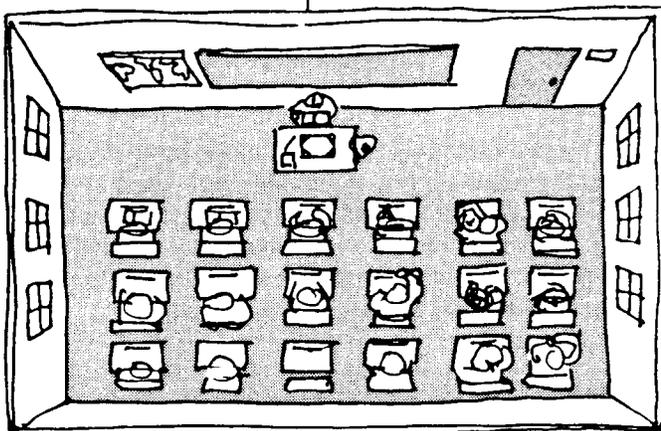
| | | | | |
|---|---|--------------------------------------|---|--------------------|
| Cost per hour to light your classroom | × | Hours per day classroom is lit | = | Cost per day |
|---|---|--------------------------------------|---|--------------------|

*Note

Fluorescent tubes cost approximately 3¢ per hour for the electricity needed to light them. The cost ranges from 2¢ to 4.5¢ per hour, depending on where you live.

How much does it cost to light your classroom for 1 week? 1 month? 1 year? How many kilowatt hours (kwh) of electricity were used?

How many fluorescent tubes are there in your school? How many classrooms? How much does it cost to light your entire school for 1 hour? 1 day? 1 week? 1 month? 1 year? How many kwh of electricity were used? Record your calculations below.



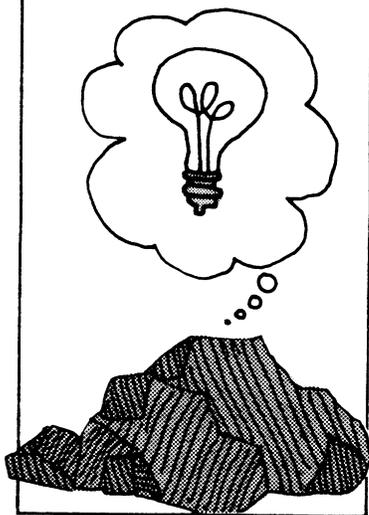
| | Classroom | School |
|---------------------|-----------|--------|
| Cost per hour | | |
| Cost per day | | |
| Cost per week | | |
| Cost per month | | |
| Cost per year | | |
| Kilowatt hours used | | |
| Tons of coal used | | |

American Coal Foundation
1130 Seventeenth St., N.W.,
Suite 220
Washington, D.C. 20036

An average 2500 kwh of electricity are produced by burning 1 ton of coal.

How many tons of coal would it take to light your classroom?
Your school?

1 of 9 Activities from
Coal: An Introduction,
by the **American Coal
Foundation, 1130
Seventeenth St., N.W.,
Suite 220
Washington, D.C. 20036**



Guide To Activities

How much does it cost to light your school?

Concept

Coal produces more than half of the electricity used in the United States, and is our most abundant domestic nonrenewable energy source.

Objective

The students will compute the cost of electricity used to light their classroom and their school for one hour through one year, the number of kilowatt hours of electricity used, and the number of tons of coal mined and burned to produce the electricity used.

Curriculum Skills/Processes

Observing, collecting data, computing, organizing, and discussing.

Time

One to two class periods, with assignments.

Background

More than 75% of the coal mined in the United States is used to produce electricity. Typically it takes about one ton of coal to produce 2500 kilowatt-hours of electricity. By checking the number of kilowatt-hours used during a billing period, a customer can determine how many pounds of coal were used to meet his or her needs—presuming that all the power was coal-generated, of course.

Here are some examples of how much coal is used yearly by a family of four to produce the electricity needed to operate various appliances:

Electric water heater — 3,375 pounds

Range — 560 pounds

Hand iron — 48 pounds

Hairdryer — 20 pounds

Vacuum cleaner — 37 pounds

Clock — 14 pounds

Color television, solid-state — 256 pounds

The U.S. has approximately 30% of the world's coal reserves. Today, electricity can be produced more cheaply from coal than from oil, gas, or nuclear power. Most of the costs of mining and burning coal in an environmentally safe manner are included in the cost of today's coal. Consequently coal should remain a reasonably priced source of electricity compared to other sources. The cost of transportation to deliver coal to the power plant can be the largest influence in the price people pay for electricity.

Action

Have the students do the calculations listed in the activity and fill in the chart provided. Discuss the actual cost per hour to operate a fluorescent bulb in your area and the reasons that regional electrical costs vary.

Results/Teaching Suggestions

Find out and discuss where your electricity comes from. It might start from a coal mine thousands of miles away. Discuss the importance of the "cost" of electricity. Help students realize that everyone uses electricity and the fuel that created it.

Other Ideas to Explore

Discuss how you could "lower" the cost of lighting your classroom and your school.

Why is coal a good fuel source for producing electricity?

What are some of the problems we need to solve to make coal a better fuel source?