

How Do You Rate?

Objective

Students will conduct a home survey to determine how they can use energy more efficiently by changing their habits and improving conditions and thereby improve the environment in which they live.

Curriculum Focus

Language Arts
Science
Social Studies

Materials

- Copies of "Student Sheet: How Do You Rate?"

Key Vocabulary

Conservation
Efficiency
Environment
Natural resources
Quality of life

Next Generation Science Correlations

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Introduction

We use natural resources every day. Sometimes we use them just as they come from earth or the atmosphere. At other times we alter their makeup to fit our needs. For instance, we use the sun just as it is to dry clothes, but we use photovoltaic cells to capture the sun's energy and convert it to electricity, a secondary energy source. We use coal just as it comes to us from the earth to make electricity, or we use coal to provide coke for steel manufacturing. Many natural resources we use every day are nonrenewable, once we use them they are gone; others are renewable, they can be replaced through natural and/or human processes.

It is responsible to use all resources efficiently and wisely. When we do, we reduce energy use, save money and preserve the environment. Making wise decisions today will have a positive impact on our future.

Imagine the difference we could make if we all used energy more efficiently. We would conserve natural resources for the future and enjoy better air quality and a better life. Each one of us can truly make a difference. All it takes is knowledge and action.



Procedure

Using energy efficiently and conserving our natural resources are responsible and easy actions that students can take today to show they respect the environment and have a desire to protect and preserve it.

1. Pass out "Student Sheet: How Do You Rate?" Discuss the actions that may apply to the school (e.g., windows and doors have weather-stripping; drapes or blinds are open on cold, sunny days and closed on hot days; thermostats are adjusted at night; lawns are only watered early or late in the day). As you discuss each action, write a T for true or F for false on the board to see how the school rates. What can the students do to improve energy use at school?
2. Decide on several actions the students can take at school to help save energy and protect the environment. One action might be to use both sides of their paper and then recycle. If a room is empty during lunch or at other times, they can be sure lights are turned off and computers are on sleep mode.
3. Have the students take the survey home and complete it with their parent's or guardian's help. Explain to students

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- that it is important to record their true energy use and not mark what they think they should be doing.
4. How did the students' homes rate? Discuss the results of the home survey. Help students to become enthusiastic about conserving natural resources and using energy more efficiently.
 5. Prepare a graph to show the results of the energy efficiency survey. Which efficiency tips are already practiced by most students? Which were least used? Graph the number of students marking yes for each item.
 6. Find the mean, median, mode and range of the data on the home survey.



Discussion

Discuss the benefits of energy conservation. How will our energy use impact our future? Compare the benefits and possible inconveniences and their correlation to our quality of life.



To Know and Do More

Why do you think people do not practice all of the energy efficiency tips on the survey? Are there false assumptions that affect people's behavior? (Believing that turning things on and off uses more energy than leaving them on, for example.)

Discuss how people in other geographic areas and cultures would rate. Does everyone have a car, dishwasher or air conditioner?



Career Awareness Activity

Have the students think of some careers that could have a big impact on your community's energy usage. Some areas to consider: teachers impact energy usage through education and by example; utility workers impact energy through education and incentives; government regulators have an influence through restrictions and rewards, such as financial benefits or tax breaks.

Student Sheet: How Do You Rate?

How energy efficient is the building you live in? Together with your parents or guardians, answer the following questions to rate your home or apartment.

Circle T if the statement is true, F if the statement is false or NA if the statement does not apply to your living situation.

Heating and Cooling

Windows and doors have good weather-stripping.	T F NA	Garage is insulated.	T F NA
Window coverings are open on cold, sunny days and closed on hot days.	T F NA	Air filters on furnace and air conditioner are cleaned and changed regularly.	T F NA
Window coverings are closed at night when heat is on.	T F NA	An energy audit has been conducted from your local utility in the last 3 years.	T F NA
Thermostat is set at 68 F (20 C) or lower in winter.	T F NA	Thermostat is adjusted at night.	T F NA
Air-conditioning is set at 78 F (26 C) or higher in summer.	T F NA	Fireplace damper is closed when fireplace is not in use.	T F NA
Ducts are insulated in unheated/uncooled areas.	T F NA		

Water

A pitcher of water is kept in the refrigerator for drinking.	T F NA	Hot water pipes from water heater are insulated.	T F NA
Faucets and toilets do not leak.	T F NA	If located in an unheated area, hot water heater is wrapped in an insulation blanket.	T F NA
Showers and faucets are fitted with energy-efficient showerheads and aerators.	T F NA	Broom, not hose, is used to clean driveways and sidewalks.	T F NA
Showers last no longer than 5 minutes.	T F NA	Faucet is shut off while brushing teeth and shaving.	T F NA
Toilets are low flow, or tanks use water displacement devices.	T F NA		
Hot water heater is set at 120 F (49 C).	T F NA		
<ul style="list-style-type: none"> If someone in your household has a compromised immune system, consult your physician. 			

Appliances

Dishwasher is usually run with a full load.	T F NA	Clothes dryer is usually run with a full load.	T F NA
Automatic air-dry is used with the dishwasher.	T F NA	Clothes are often hung up to dry.	T F NA
Washing machine is usually run with a full load.	T F NA	Refrigerator is set no lower than 37 F (3 C).	T F NA
Cold water is used in washing machine most of the time and is always used for rinses.	T F NA	Lids are usually put on pots when boiling water.	T F NA
		Oven is preheated for only 10 minutes (if at all).	T F NA

Lighting

Lights are turned off when not in use.	T F NA	Light bulbs are kept dusted and clean.	T F NA
LED bulbs are used in at least one room.	T F NA	Sunlight is used whenever possible.	T F NA
Security and decorative lighting is powered by solar energy.	T F NA		

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Other

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| Paper, plastic and other materials are recycled. | T F NA |
| Lawns are watered early or late in the day. | T F NA |
| Kids and parents carpool when possible. | T F NA |
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Score 1 point for True, 0 points for False and 0 points for Not Applicable (NA).

Total Points: _____

Discuss the results of this survey with your family.

What can you and your family do to raise your score?