

# 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.

Materials and Curriculum Correlations ▼

## ► 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 it 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 the student sheet. 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 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

1. 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.)
2. Discuss how people in other geographic areas and cultures would rate. Does everyone have a car, dishwasher or an 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 usage through installation and maintenance; government regulators have an influence through restrictions and rewards, such as financial benefits or tax breaks.

## Materials Needed:

- Student sheet

## Curriculum Correlations

K-ESS2 - 2  
K-ESS3 - 3  
3-PS2 - 3  
4-ESS3 - 1

5-ESS3 - 1  
5-ESS3.C  
MS-LS2 - 1  
MS-ESS3 - 3

MS-ESS3.A  
HS-ESS3 - 3

# 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 or lower in winter.	T	F	NA	Thermostat is adjusted at night.	T	F	NA
Air-conditioning is set as high as is comfortable 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 heater is set at 120 F.			
Faucets and toilets do not leak.	T	F	NA	• If someone in your household has a compromised immune system, consult your physician.	T	F	NA
Showers and faucets are fitted with energy-efficient shower heads and aerators.	T	F	NA	Hot water pipes from water heater are insulated.	T	F	NA
Showers last no longer than 5 minutes.	T	F	NA	Broom, not hose, is used to clean driveways and sidewalks.	T	F	NA
Toilets are low flow or tanks use water displacement devices.	T	F	NA	Faucet is shut off while brushing teeth and shaving.	T	F	NA

## Appliances

Dishwasher is usually run with a full load.	T	F	NA	Clothes are often hung up to dry.	T	F	NA
Automatic air-dry is used with the dishwasher.	T	F	NA	Refrigerator is set between 35 F and 38 F.	T	F	NA
Washing machine is usually run with a full load.	T	F	NA	Lids are usually put on pots when boiling water.	T	F	NA
Cold water is used in washing machine most of the time and is always used for rinses.	T	F	NA	Oven preheating time is reduced or not preheated at all.	T	F	NA
Clothes dryer is usually run with a full load.	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.	T	F	NA	Sunlight is used whenever possible.	T	F	NA
Security and decorative lighting is powered by solar energy.	T	F	NA				

## Trash

Glass, cans and newspapers are recycled.	T	F	NA	Reusable bags are used for groceries, or bags are recycled.	T	F	NA
Plastic is separated and recycled.	T	F	NA	Rechargeable batteries are used when possible.	T	F	NA
Old clothes are often given to charities, secondhand clothing stores, etc.	T	F	NA	Food is often bought in bulk.	T	F	NA
Food scraps and organic waste are composted.	T	F	NA	Products made of recycled materials are favored.	T	F	NA
Overpackaged products are usually avoided.	T	F	NA				

## Transportation

Car is properly tuned and tires inflated.	T	F	NA	Family members often walk or ride a bike for short trips.	T	F	NA
Family drivers obey speed limit on the highway.	T	F	NA	Families carpool when possible.	T	F	NA
Public transportation is used when possible.	T	F	NA				

## Environment

Trees and bushes are maintained for wildlife shelter and food.	T	F	NA	Native plants are used to decrease water use.	T	F	NA
Bird feeders or bird houses are maintained.	T	F	NA				

## Yard and Workshop

Lawns are watered early or late in the day.	T	F	NA	Cutting edges on tools are kept sharp.	T	F	NA
Grass is mowed to a height of 2 to 4 inches.	T	F	NA	Electrical tools are maintained and gas equipment is kept tuned and serviced.	T	F	NA
Hand tools, like pruners and clippers (rather than power tools) are used whenever possible.	T	F	NA				

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?