

Home Energy Audit: Home Energy Audit Lesson Plan

Energy efficiency and conservation are important steps we can take to protect the climate. Through an energy game and an energy audit exercise, this two-day lesson teaches students will learn how to save energy in their homes.

Key Vocabulary Words

Efficiency: amount of work that a machine does compared with the quantity of energy input.

Conservation: careful use and protection of natural resources.

Energy Audit: evaluation of energy consumption in a home or business to determine ways that energy can be conserved.

Phantom Load: energy used by electrical devices when they are plugged in but not being used.

Preparation

Save or Waste Game:

Objectives: Students will

- Understand the services that are provided to them in their homes through electricity
 - Understand how energy conservation can help reduce greenhouse gas emissions.
- Electrical energy can be converted to heat, light, motion (electrical cars and trains, power to homes).

Procedure: Shuffle the game cards before distributing one card to each student.

Ask students to read aloud the action on their game card. As the student reads aloud the action, ask them to identify and explain whether the action is a 'saver' or a 'waster' and why.

See the example below.

The attic is insulated. This is a 'saver' because Insulation saves energy by keeping a house warmer in the winter so you don't need to over use the heater. Teams start the game with a "Carbon Footprint Score" of 200. The winning team is the team that reaches zero or the team with the lowest "Carbon Footprint Score" when the teacher decides to end the game.

Teams take turns answering questions, so that the class hears the answers and information about protecting your climate is reinforced. For each correct definition their team subtracts 5 points from their "Carbon Footprint Score." Incorrect definitions add 5 points to their team score.

9. After giving the definition, correct or not, the same student is given the option of picking the top card from the "Save or Waste" stack and reading it aloud. If the action on the card

saves energy, the student's team removes 10 points from their team "Carbon Footprint score."

If the action on the card wastes energy, the student's team adds 10 points to their score.

Home Energy Audit

Save or Waste Game Cards:

Insulate Attic	Do not insulate attic.
Clean your home's air filter frequently.	Do not clean your home's air filter
Set thermostats at 68 degrees in the winter.	Set thermostats at 78 degrees in the winter.
Set thermostats at 78 degrees in the summer.	Set thermostats at 68 degrees in the summer
Buy Energy Star® labeled appliances	Do not check for the Energy Star® label on

	new appliances.
Wash clothes in cold water when possible	Wash clothes in warm water when possible.
Use a clothesline for drying clothes when possible.	Always use a dryer to dry clothes.
Take 10-minute showers.	Take 20-minute showers
Switch incandescent light bulbs to CFLs	Switch CFLs to incandescent light bulbs.
Turn the lights off when leaving a room.	Leave the lights on when leaving a room.
Run full loads of dishes in the dishwasher.	Run the dishwasher with only a few dishes in it.
Unplug phantom loads.	Leave phantom loads plugged in.
Turn off the TV when I am not using it	Leave the T.V. on when I am not watching it
Always use the car even when I could walk, bike, use public transit or carpool.	Use my bike, carpool, or use public transit whenever possible.

Assessment:

Students will make a list of things to tell their parents about how and why to save energy. Use this list for the homework assignment. Students will conduct a home energy audit.

NAME:

DATE:

Home Energy Audit

How energy efficient is your home? Do this energy audit with your family and find out if what you already know about and find out new ways to save energy. Check the answer box that best matches you and your home. There are no wrong answers, so be honest. As each home is different **only answer the questions that apply to your household.**

1. *Insulation:* If you have an attic, is it insulated?

Yes

No

2. *Filters:* Air Conditioning and Heating Furnaces have filters. Check your filters:

Are they dirty or clean? Ask your parents when they were last changed. Changed in the last...

3 months

6 months

Last Year

Never Changed Before

3. *Thermostat:* Check your thermostat and record what temperature it is at here: _____

What temperature is your thermostat set at when you are home?

In the winter (cool months):

73 or more

70-72 degrees

69 or less

We have no furnace or heater

In the summer (warm months):

74 degrees or less 75-77 degrees 78 degrees or more (5pts)

We have no air conditioner

4. *Electricity*: Search your house for appliances and electronics with the Energy Star® symbol.

How many did you find?

No Energy Star® labels found

1-2 Energy Star® labels found

3 or more Energy Star® labels found

5. *Thermostat*: When you get too cold or too hot at home you...

Turn the heat up when you are cold or the air conditioning up when you are hot

Put on a sweater when you are cold or wear less clothing when you are hot

6. *Laundry*: At what temperature setting do you wash your clothes?

Mostly HOT water

Mostly WARM water

Mostly COLD water

7. *Laundry*: How often do you use your dryer?

Always dry clothing in the dryer

Sometimes dry clothes in dryer but most days hang clothes to dry

Never, always hang clothes on clothing line to dry

8. *Hot water use*: Time your next shower- how much time did you spend in the shower?

20 minutes

10 minutes

5 minutes

9. *Lighting*: Count the number of compact fluorescent light (CFL) bulbs in your house.

None 1-3 CFL bulbs 4 or more CFL bulbs

10. *Weather-stripping*: Open your front door and check the condition of the weather-stripping between the door and the doorframe.

None Worn out Good condition

11. *Phantom Loads*: Check your house for appliances plugged in that are not in use

(cell phone chargers plugged in and not charging a phone, VCR that is plugged in and not being used, toaster oven plugged in while not in use etc.)

Appliances plugged in when not in use

1-4 appliances unplugged in when not in use

No appliances plugged in when not in use and/or power bar being used

12. *Dishwasher*: Check your dishwasher after it has been run. Is it....

Partially empty Mostly Full Full No dishwasher

13. *Cooking*: How often does your family keep lids on pot and pans when cooking?

Almost never Sometimes Always

14. *Water Heater*: Find the Energy Guide label on your water heater and look at the efficiency rating. How much energy does it use compared to similar models?

Uses the most energy Uses average energy Uses the least energy