

Activity- The Energy Choices Game

Purpose

Energy is a critical resource that is used in all aspects of our daily lives.

The world's supply of nonrenewable resources is limited and our continued use of fossil fuels is negatively affecting our environment. We need to help in any way we can. When we make personal decisions we affect the future of energy in our world. Making smart energy decisions today will prove beneficial later.

Equipment (for each game)

“The Energy Choices Game” Board
Game Pieces/ Pawns
Game Cards
Energy Use Tally Sheets
Calculator
Money

Set-Up

Break up into groups of 4-5 students each. Each group will play a separate *Energy Choices Game*.

Choose a banker: One student will be assigned the role of the banker. The banker is responsible for accepting/distributing money and gas cards. A calculator may be necessary. The banker may choose to participate in the game as well as being the banker, or to simply do his/her job and watch the other players play.

Choose your Game Pieces: Each player should choose a game piece and put their piece on the start square.

Hand out the money:

Each player or team should begin the game with \$50,000. The banker should hand out packets of money to each player consisting of the following bills:

- 3 \$10,000 bills
- 2 \$5000 bills
- 6 \$1000 bills
- 7 \$500 bills
- 2 \$100 bills
- 4 \$50 bills
- 5 \$20 bills

Count Gasoline Cards: the game should begin with a stack of 10-15 gasoline cards per player. These cards are left in the community gasoline supply pile until the gasoline is consumed.

Pick you System and Transportation Cards: Each player should pick an “Energy System” and “Transportation” Card.

Your **Energy System Card** tells you the size of your house, source of electricity, source of heat, type of cooling system, type of insulation, set-up cost (TO BE PAID AT THE START OF YOUR FIRST TURN) and starting annual energy use (TO BE WRITTEN IN THE COLUMN TITLED "STARTING ENERGY USE" ON YOUR ENERGY USE TALLY SHEET).

Your **Transportation Card** tells you the vehicle that you will use throughout the game (unless you have a choice or reason to pick a new one). Your Transportation Card gives you information on your vehicle such as: average miles per gallon (city and highway) and the number of gasoline cards it takes to fill up your tank.

The Play

1. Green Zone: Roll the 8 sided dice to represent driving your car while you are in the green zone and move the number of spaces indicated.
2. Blue and yellow zones: Choose whether you want to drive a car or ride a bike. If you choose to ride your bike, roll a 4 sided die. If you choose to drive your car, roll the 8 sided die. (You MUST choose your mode of transportation before rolling.)
3. Draw the card for the type of square that you land on.
4. Follow the instructions on the card.
5. When you pass a gasoline station:
 - i. If you are driving a car, pay for gasoline and take gasoline cards.
 - ii. If you are riding a bike, continue as if there was no gasoline station.
6. Pay for your Energy Use as you pass the energy bill spaces that you come to on this turn.
7. Update your tally sheet if the card you get changes your energy use.

At the end of the game:

1. The game concludes after all players reach the end of the board game OR the supply of gasoline cards runs out.
2. Pay the carbon tax for fossil fuel energy consumed (\$100 for each gasoline card)
3. Pay a carbon tax for your energy use. Use this equation:
$$\text{Carbon tax} = 1/3 \text{ final energy bill.}$$
4. Count your remaining funds.
5. Complete the tally sheet. Enter your final funds, gasoline cards, and carbon tax paid. The player with the most money remaining has successfully made wise choices regarding energy use and conservation.

Description of Game Cards:

“System” Cards:

These cards describe different housing situations. The card you draw from this pile will determine the size of your house, where your power and heating come from, the type of insulation in your home, your annual home energy bill, and your carbon tax. Write the amount of your energy bill in the TOP LINE OF THE CURRENT BILL COLUMN ON YOUR HOME ENERGY BILL TALLY SHEET

“Transportation” Cards:

The card you draw from this deck will determine the type of vehicle you drive. It will have information about the vehicle’s average miles per gallon and the number of gasoline cards you will have to buy each time you pass a gasoline station.

“Situation” Cards:

When you land on a **‘situation’** square you will draw a card from this deck and you MUST follow the instructions. In many cases, the situations that come up apply to all players. If so, all players must follow the direction on the card as it applies to them.

“Choice” Cards:

When you land on a **“choice”** square you will draw a card from this deck and you MUST choose one of the options listed on the card. There are two types of choices on the cards. Some choice cards give you a choice between two or three options (i.e. which type of grill do you want to buy?). Others give you the choice to either do something or not (i.e. do you want to add a solar water heater to your home or not?). Follow the directions on the card.

Gasoline Cards:

When you pass a gasoline station you must buy and take the number of gasoline cards as indicated on the bottom of your “Transportation” Card. The price of the gas cards is different in each zone of the board. The prices are written on the game board in their zones. At the end of the game you will pay a carbon tax for each gasoline card in your possession. The game is over if the supply of gasoline cards runs out before players have reached the end of the game board.

Energy Bills:

When you pass an Energy Bill gate you need to pay for your energy at the current price as indicated on the board for each zone. The starting amount of your energy bill (in zaps) is written on your “system” card. Some “situation” and “choice” cards will affect your energy use. You will pay for energy per zap. For example, if your energy use is

1,000 zaps and the cost of energy is \$1 per zap, you will pay \$1,000. If your energy use is 1,000 zaps and the cost of energy is \$2 per zap, then you will pay \$2,000. There is a possibility to have negative energy use, in which case you will be paid (by the bank) when you pass an Energy Bill gate.

Home Energy Use Tally Sheet:

Each player or team needs to keep a tally sheet. On this sheet of paper you will record any changes to your home energy use resulting from a "situation" or "choice" card that you pick up. If a card indicates an increase in your energy use, write the amount the card says your use will increase in the "ADD" column and then ADD that amount to the amount your "CURRENT USE" column. If the card indicates a decrease in your energy use, write the amount in the "SUBTRACT" column and SUBTRACT that amount from your "CURRENT USE" column. When you pay your energy bill always pay the amount at the bottom of your "CURRENT USE" column, multiplied by the cost per zap as indicated in the board.

Game Tally Sheet – Need one for Each Player

Name			
Energy Use Tally Sheet			
Home System Card (Write the system letter)			
Starting Energy Use (in zaps)			

Reason for Change	Add	Subtract	Current Energy Use

Transportation	
Vehicle	# Gasoline Cards

Final # Gasoline Cards		Money Left at end of game	
Gasoline Carbon Taxes (\$100 x # cards)			
Carbon Tax on Final Energy Use (1/3 X final energy use)			
Total Carbon Taxes Paid (\$)			

Discussion Questions

1. Which home system was left with the most money at the end of the game? Why do you think that happened?

2. Which form of transportation was left with the most money at the end? Why do you think that happened?

3. If you could play the game again, what choices would you make about your home, car, and appliances?

4. Did you run out of gasoline before the end of the game? How do you think that would change your life if that happened today?