# CHAPTER 16
# RESOURCE DEVELOPMENT:
## CAPITALISM AND THE ENVIRONMENT


### LEARNING GOALS:

*Have students develop an understanding of:*

1) Economic dependency of the environment and its relation to climate change
2) Science and human dimensions of environmental issues and how they relate to global economic inequality
3) Intended and unintended consequences of the interactions between human-created and natural systems

### SUCCESS CRITERIA:

*I will know I am successful when I learn all these things:*

1) A clear understanding of the differences between ecological benefits and services, natural resources, and pollution
2) Knowledge of science vs human dimensions of environmental issues and how they can relate to global economic and social injustices
3) The importance of active citizenship and the challenges associated with Externality
4) An understanding of the terms Climate Change and Greenhouse gases, and assess how carbon dioxide emissions will impact economic growth and environmental stability.

### ACTIVITIES BRAINSTORM:

- Create a venn diagram that compares corporations such as resource extraction (Oil, Mining, Forestry, Commercial Fishing, Hydroelectricity) and the surrounding environment ( both pro's and con's) of the perspective of a business person and perspective of flora/fauna, i.e. native salmon swimming up a river that was recently damned
- A short essay that explores the relationship between active citizenship and systemic change
- Culminating: Inquiry project that explores the complexities of big business, government regulations, the environment and ignorance.

## RESOURCES:

1) nap.edu/read/5992/chapter/8
2) human-dimensions.org/publications
3) policyalternatives.ca/publications/facts-infographics/graph-more-enough
4) policyalternatives.ca/publications/commentary/carbon-pricing-and-climate-mitigation-backgrounder-part-i-ii

- The Lie We Live—Environment and the citizen
- The Central Bank Scam
- Suzuki—Economics is a form of brainwash
- Environmental and Social Injustice
- Environmental inequality - Ted Talk - Van Jones
- The Corporation Externalities
- The Story of Stuff
- US Government (Systematic failure—Trump)
- US Government (Systematic failure - Trump)
- Humanium

## LESSON BANNER:

"No production is possible without nature, which provides us with needed supplies and resources, a capacity to absorb (a certain amount of) pollution, and a healthy and pleasurable place to live and work."
-Stanford p. 195

## MINDS ON:

A famous behavioural economics experiment is known as the "Ultimatum Game." In this game, two people (who are in situations in which they cannot communicate with each other) are told that they will be given a sum of money, say $20, to share. The first person gets to propose a way of splitting the sum. This person may offer to give $10 to the second person or only $8 or $1 and plan to keep the rest. The second person cannot offer any input to this decision but can only decide whether to accept the offer or reject it. If the second person rejects the offer, both people will walk away empty-handed. If the offer is accepted, they get the money and split it as the first person indicated. If the two individuals act only from narrow financial self-interest, then the first person should offer the second person the smallest possible amount—say $1—in order to keep the most for himself or herself. The second person should accept this offer because, from the point of view of pure financial self-interest, $1 is better than nothing. In fact, researchers find that deals that vary too far from a 50–50 split tend to be rejected. People would rather walk away with nothing than be treated in a way that they perceive as unfair. Also, whether out of a sense of fairness or a fear of rejection, individuals who propose a split often offer something close to 50–50. In the context of social relations, even the most selfish person will gain by serving the common good and thus walking away with somewhere around $10, rather than just looking at his or her own potential personal gain and quite possibly ending up with nothing.
(Source: ase.tufts.edu/gdae/Pubs/te/MIC/3e/MIC_3e_Ch7.pdf)

- The first person (deal maker) must be pro environment
- The person who accepts or rejects the deal must for profit and business

**ACTION:**

Have students read the blurb below that was created by one of the resource developers. After students have read the blurb, have an open discussion about it. Gather some different opinions and stances on particular areas of the blurb. Ask the students how it makes them feel.

Once the class has had their opportunity to discuss the blurb, the assignment is to create a timeline from birth to present age. Each student is to determine when learning how to self-sustain ends and when societal driven influence begins. Students are to include personalized reasoning based on their life experiences. After students complete their timeline, have them create a different timeline based on the life of an individual their age from a less developed country. How do the timelines compare? What influences are similar, or different? Students may want to explore Humanium.

### Discussion blurb

*What is the purpose of the human life? Is it to make money, get the best possessions, housing, travel, extract as much resources as we can, is it to go to war? Depending on who you ask in the present day, on an overall scale it may be all of these things. Individually, in the beginning stages of life it is to learn the abilities of how to sustain oneself, but at what point does self-sustaining become more than just working for basic necessities?*

*The people/society that surround you can impact the perception of what is necessary. They may influence you to think that having more than enough is necessary, thus creating a platform for comparison and judgement from life's existential desires instead of essential needs. There are many economic realms, as part of the industrial realm, it is our responsibility to create more efficiency and less waste that promotes sustainability to the carrying capacity of the planet.*

**Presentation of findings:**

The presentation must include information from the chapter and the activities. The presenter must demonstrate knowledge of:

- Science vs. human dimensions of environmental issues and how they can relate to global economic and social injustices.
- The importance of active citizenship and the challenges associated with externality.
- The terms of climate change, and greenhouse gases and their impacts.
- The results of the “Ultimatum Game” and “Timeline” and how it made them feel.

| Criteria | 4 | 3 | 2 | 1 | R |
|---|---|---|---|---|---|
| Knowledge & Understanding | demonstrates thorough understanding of content | demonstrates considerable understanding of content | demonstrates some understanding of content | demonstrates limited understanding of content | does not meet expectations |
| Application | applies knowledge and skills in familiar contexts with a high degree of effectiveness | applies knowledge and skills in familiar contexts with considerable of effectiveness | applies knowledge and skills in familiar contexts with some of effectiveness | applies knowledge and skills in familiar contexts with limited of effectiveness | does not meet expectations |
| Thinking & Investigation | uses problem solving & critical thinking skills with a high degree of effectiveness | uses problem solving & critical thinking skills with considerable effectiveness | uses problem solving & critical thinking skills with some effectiveness | uses problem solving & critical thinking skills with limited effectiveness | does not meet expectations |

**Activity—Energy Choices Board Game (resource PDFs found at the end)**

**Introduction—Energy Choices Board Game**

**Instructions—Energy Choices Board Game**

**Fact Sheets—Energy Choices Board Game**

**Directions—Energy Choices Board Game**

**Game Board—Energy Choices Board Game**

**Game Cards—Energy Choices Board Game**

**Game Money—Energy Choices Board Game**

**System Cards—Energy Choices Board Game**

**Award Certificates—Energy Choices Board Game**

## EXPECTATIONS:

**CGC1D**

- B1.4 explain how human activities can alter physical processes and contribute to occurrences of natural events and phenomena
- C1.4 analyse the roles and responsibilities of individuals in promoting the sustainable use of resources
- C3.1 identify the natural resources needed to produce and distribute a product that is used in the everyday lives of people living in Canada (e.g., raw materials, resources used in production and transportation)

**CIE3M**

- B1.1 explain the concepts of scarcity and opportunity costs, and analyse how individuals, governments, and organizations apply these concepts as they make economic choices
- B3.1 compare how different economic systems (i.e., market, mixed, traditional, command) answer the three fundamental economic questions about production (i.e., what, how, and for whom to produce)
- B3.2 analyse how different political-economic systems (e.g., capitalism, socialism) respond to challenges associated with stability and variability
- C4.5 explain how economic models and data are used to measure social need in Canada and to help frame responses to social issues

**HFA4U/4C**

- demonstrate an understanding of various factors involved in achieving and maintaining food security

**SVN3M**

- F1.2 assess the costs and benefits to society of the use of renewable and nonrenewable energy sources, using a variety of criteria
- F3.1 explain the historical significance of a variety of energy sources (e.g., whale oil, coal), and describe their long-term impact on the environment

**TCJ20**

- C1. demonstrate an understanding of environmentally responsible practices, and apply them throughout the technological design process;
- D1. demonstrate an understanding of ways in which the construction industry affects the environment;
- D2. describe ways in which the construction industry affects society.

**TCJ3C**

- D1. demonstrate an understanding of the environmental effects of construction projects, and ways of reducing harmful effects;
- D2. describe how society and the construction industry affect each other.

**TCJ3E**

- D1. demonstrate an understanding of the environmental effects of construction projects, and ways of reducing harmful effects;
- D2. demonstrate an understanding of how society and the construction industry affect each other.

**TCJ4C**

- D1. identify and evaluate measures that can be taken to conserve resources on construction projects;
- D2. explain how the construction industry and society affect each other.

**TCJ4E**

- D1. demonstrate an understanding of the environmental effects of construction projects, and ways of reducing harmful effects;
- D2. demonstrate an understanding of how the construction industry affects society.

**TDJ3M**

- C1. demonstrate an understanding of environmentally responsible design practices, and apply them in the technological design process and related activities;
- C2. describe the relationship between society and technological development.

**TDJ3O**

- C1. demonstrate an understanding of environmentally responsible design practices and strategies, and apply them in the technological design process and related activities;
- C2. describe how society influences technological innovation and how technology affects society.

**TDJ4M**

- C1. demonstrate an understanding of environmentally responsible design practices, and apply them in the technological design process and related activities;
- C2. analyse the relationship between society and technological development.

**TDJ4O**

- C1. demonstrate an understanding of environmentally responsible design practices and strategies, and apply them in the technological design process and related activities;
- C2. research and describe the relationship between society and technological development.

**TEJ2O**

- C1. identify harmful effects of the widespread use of computers and associated technologies on the environment, as well as agencies that reduce these effects;
- C2. identify effects of the widespread use of computers and associated technologies on society.

**TEJ3M**

— C1. describe environmental issues related to the widespread use of computers and associated technologies;
— C2. describe societal issues related to the widespread use of computers and associated technologies.

**TEJ3E**

— C1. describe environmental issues related to the widespread use of computer technology;

**TEJ4M**

— C1. analyse environmental issues related to the widespread use of computers and associated technologies, and apply strategies to reduce environmental harm from computer use;
— C2. analyse societal issues related to the widespread use of computers and associated technologies.

**TEJ4E**

— C1. describe environmental issues related to the widespread use of computer technology, and apply strategies to reduce environmental harm from computer use;
— C2. analyse societal issues related to the widespread use of computer technology.

**TFJ20**

— C1. demonstrate an understanding of ways in which various aspects of the tourism industry affect the environment, and ways in which harmful effects can be reduced;
— C2. demonstrate an understanding of ways in which various aspects of the tourism industry affect society.

**TFJ3C**

— C1. demonstrate an understanding of factors that affect the relationship between the tourism industry and the environment;
— C2. demonstrate an understanding of factors that affect the relationship between the tourism industry and society.

**TFJ3E**

— C1. demonstrate an understanding of ways in which various practices of the food and beverage services sector of the tourism industry affect the environment;
— C2. demonstrate an understanding of ways in which various aspects of the food and beverage services sector of the tourism industry affect society.

**TFJ4C**

— C1. demonstrate an understanding of factors that affect the relationship between the tourism industry and the environment;
— C2. demonstrate an understanding of factors that affect the relationship between the tourism industry and society.

**TFJ4E**

— C1. demonstrate an understanding of how various practices connected with the tourism industry in general and the food and beverage services sector specifically affect the environment, and how these effects can be reduced;
— C2. demonstrate an understanding of ways in which various practices connected with the tourism industry in general and the food and beverage services sector specifically affect society.

**TGJ2O**

— C1. describe the impact of communications media technologies and activities on the environment and identify ways of reducing their harmful effects;
— C2. demonstrate an understanding of social effects and issues arising from the use of communications media technologies and the importance of representing cultural and social diversity in media productions.

**TGJ3M**

— C1. describe the impact of current communications media technologies and activities on the environment and identify ways of reducing harmful effects;
— C2. demonstrate an understanding of the social effects of current communications media technologies and the importance of respecting cultural and societal diversity in the production of media projects.

**TGJ3O**

— C1. describe the impact of communications media technologies and activities on the environment, and identify ways of reducing their harmful effects;
— C2. demonstrate an understanding of social effects and issues arising from the use of communications media technologies and the importance of respecting cultural and societal diversity in the production of media projects.

**TGJ4M**

— C1. analyse the environmental impact of recent advances in communications technology, and describe ways of reducing harmful effects;
— C2. demonstrate an understanding of the effects of communications technology and media activities on society and cultural diversity.

**TGJ4O**

— C1. describe the environmental impact of communications media technologies, and identify ways of minimizing their harmful effects;
— C2. demonstrate an understanding of social effects and issues arising from the use of communications media technologies and the importance of respecting cultural and societal diversity in the production of media projects.

**THJ2O**

— C1. identify the impact of green industries on the environment and describe ways of minimizing harmful effects;
— C2. describe the societal implications of current practices and trends in the green industries;
— C3. describe the relationship of a variety of green industries to the local communities in which they operate.

**THJ3E**

— C1. describe the environmental impact of practices and products in the hairstyling and aesthetics industry, and identify safe practices and environmentally friendly solutions to problems;
— C2. describe social and economic relationships and issues involving the green industries.
— C1. identify the impact of the green industries on the environment and describe ways of minimizing harmful effects;

**THJ3M**

— C1. analyse the impact of the green industries on the environment and describe ways of minimizing harmful effects;
— C2. analyse social and economic relationships and issues involving the green industries.

**THJ4E**

— C1. assess the impact of the green industries on the environment and describe ways of enhancing environmental sustainability;
— C2. describe social, economic, and cultural relationships involving the green industries.

**THJ4M**

— C1. assess options for achieving environmental sustainability in green industry operations;
— C2. analyse social, economic, and cultural relationships involving the green industries.

**TIJ1O**

— C1. demonstrate an awareness of the effects of various technologies on the environment;
— C2. demonstrate an awareness of how various technologies affect society, as well as how society influences technological developments.

**TMJ20**

— C1. demonstrate an understanding of ways in which the manufacturing industry affects the environment;
— C2. demonstrate an understanding of ways in which the manufacturing industry affects society.

**TMJ3C**

— C1. demonstrate an understanding of ways in which the manufacturing industry affects the environment;
— C2. demonstrate an understanding of ways in which the manufacturing industry affects society.

**TMJ3E**

— C1. demonstrate an understanding of ways in which the manufacturing industry affects the environment;
— C2. explain how the manufacturing industry affects various aspects of society.

**TMJ3M**

— C1. demonstrate an understanding of ways in which the manufacturing industry affects the environment;
— C2. demonstrate an understanding of ways in which the manufacturing industry affects society.

**TMJ4C**

— C1. demonstrate an understanding of the importance of using sustainable and environmentally friendly manufacturing practices;
— C2. explain the importance of manufacturing to the economy and society.

**TMJ4E**

— C1. demonstrate an understanding of the importance of using sustainable and environmentally friendly manufacturing practices;
— C2. explain how the manufacturing industry affects society locally, provincially, and/or nationally.

**TMJ4M**

— C1. demonstrate an understanding of ways in which the manufacturing industry affects the environment, and make informed decisions based on this understanding;
— C2. assess the impact of the globalization of the manufacturing industry on society at the local, provincial, and national levels.

**TOJ4C**

— C1. analyse how environmental factors affect children and older adults, and how products and services related to the care of these groups may affect the environment;
— C2. analyse the role of society in caring for children and the elderly.

**TPJ20**

— C1. demonstrate an understanding of environmental issues related to health care and personal well-being;
— C2. describe social trends and health care issues relating to children and adolescents.

**TPJ3C**

— C1. describe the impact of health care industry activities on the environment and identify ways of minimizing their harmful consequences;
— C2. describe the impact of current social patterns and trends on personal health and the delivery of health care.

**TPJ3M**

— C1. describe the impact of health care industry activities on the environment and identify ways of minimizing their harmful consequences;
— C2. describe the impact of current social patterns and trends on personal health and the delivery of health care.

**TPJ4C**

— C1. describe the impact of the healthcare industry on the environment, and identify legal requirements and guidelines for protecting the environment from harmful consequences;
— C2. describe the societal and ethical implications of advances in medical technology.

**TPJ4E**

— C1. identify the impact of medical wastes on the environment, and describe ways of protecting the environment from these hazards;
— C2. demonstrate an understanding of ways in which health care issues and societal issues are interrelated.

**TPJ4M**

— C1. assess the impact of the healthcare industry on the environment, and identify legal requirements and guidelines for protecting the environment from harmful consequences;
— C2. assess the societal and ethical implications of advances in medical technology.

**TTJ20**

- C1. demonstrate an understanding of ways in which various aspects of the transportation industry affect the environment and ways in which harmful effects can be remedied or reduced;
- C2. demonstrate an understanding of the relationship between various aspects of the transportation industry and society.

**TTJ3C**

- C1. demonstrate an understanding of environmental issues related to the use of materials and procedures in the service, repair, and recycling of vehicles or craft;
- C2. demonstrate an understanding of the relationship between society, vehicle ownership, and various aspects of transportation technology.

**TTJ30**

- D1. explain how vehicle ownership affects the environment and how vehicle owners can remedy or reduce harmful effects;
- D2. explain how vehicle ownership and various aspects of the transportation industry affect society.

**TTJ4C**

- C1. demonstrate an understanding of environmental issues in the transportation industry, and use best practices to remedy or reduce the environmental effects of using specific products or processes;
- C2. assess the effects that various aspects of the transportation industry have on society.

**TTJ4E**

- C1. demonstrate an understanding of ways in which various aspects of the transportation industry affect the environment, and ways in which harmful effects can be remedied or reduced;
- C2. demonstrate an understanding of the relationship between various aspects of the transportation industry and society.

**TWJ3E**

- D1. demonstrate an understanding of the environmental effects of the woodworking industry, and ways of reducing harmful effects;
- D2. describe how the woodworking industry and society affect each other.

**TWJ4E**

- D1. demonstrate an understanding of the environmental effects of the woodworking industry, and ways of reducing harmful effects;
- D2. demonstrate an understanding of how the woodworking industry and society affect each other.

**TXJ2O**

- C1. describe ways in which hairstyling and aesthetics products and activities can affect the environment, and ways to reduce harmful effects;
- C2. demonstrate an understanding of trends and social issues in relation to the hairstyling and aesthetics industry.

**TXJ3E**

- C1. describe the environmental impact of practices and products in the hairstyling and aesthetics industry, and identify safe practices and environmentally friendly solutions to problems;
- C2. explain why hairstyling and aesthetics services are important to society, and identify ways in which social and cultural factors affect the industry.

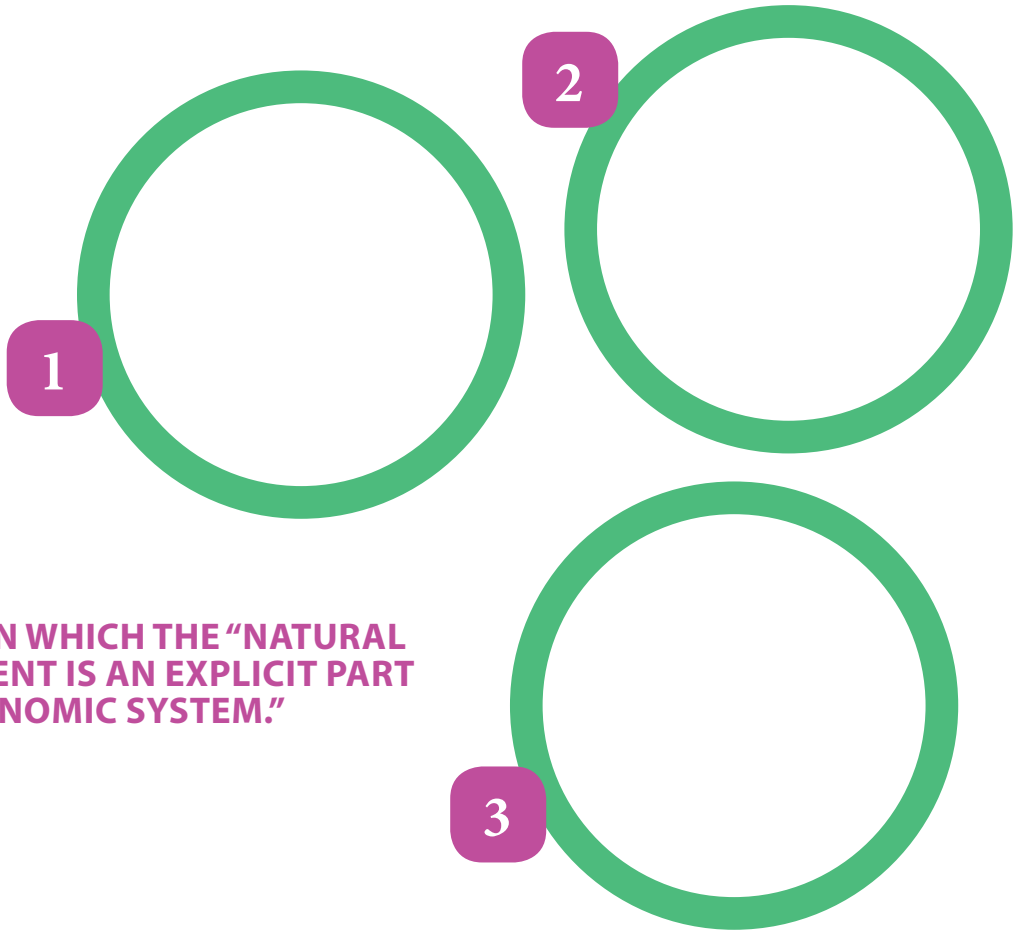
**TXJ4E**

- C1. evaluate practices and products in the hairstyling and aesthetics industry in terms of their impact on the environment;
- C2. evaluate the hairstyling and aesthetics industry in terms of its impact on society.

# CHAPTER 16

**CAPITALISM AND THE ENVIRONMENT**

## READING RESPONSE




**LIST WAYS IN WHICH THE "NATURAL ENVIRONMENT IS AN EXPLICIT PART OF THE ECONOMIC SYSTEM."**

What is the central injustice at the root of environmental inequality?

_____

_____

_____

_____

## DEFINE KEY TERMS

| Key term | Definition |
|---|---|
| Climate Change | |
| Greenhouse | |
| Gases | |
| Sustainability | |
| Externality | |
| Carbon Tax | |
| Emissions Trading | |

**Does Stanford think it's possible to "solve" climate change through the markets?:**

_____

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*photo: Mark Neil Balson*
*utoronto.ca/news/memoriam-university-professor-emerita-ursula-franklin*

It would not surprise me if, within your lifetime, it will become common knowledge that what makes and maintains a liveable world is the simultaneous presence of beauty, functionality, and frugality.

— Ursula Franklin, *Three Lessons from the Natural World*

In point form, summarize the different aspects of growth. What does Stanford mean when he says “it is possible to imagine a no-growth economy which avoids negative outcomes, but it can’t be a capitalist one”?

Stanford evokes WWII as an example when countries bypassed their usual instincts to reign in collective investment in pursuit of a larger goal—the fight against facism. He believes that a “peaceful world war on climate change” is needed now. List climate goals, and tools he proposes to achieve them:

**CLIMATE GOALS**

**TOOLS**

7/5/2018

Clarkson UNIVERSITY defy convention

# Energy Choices Board Game

Energy-related issues are particularly relevant to today's students. The limited supply of fossil fuels, combined with detrimental environmental effects associated with energy use, are dictating dramatic changes in the way we harness and use energy. An educational program that provides students with the ability to critically analyze and problem solve will prepare them to interpret energy issues and make sound actions and choices, as voters, consumers, and professionals.

A board game has been developed by students and staff from Clarkson and St. Lawrence Universities as part of their NSF-funded K-12 Project-Based Learning Partnership Program. The game is used to introduce the concepts of energy use in our lives and the very real impact that personal choices can have on our energy consumption, energy bills, and fuel supply.

The game begins as each student selects cards that define their mode of transportation and home design. The players roll dice and move around the board, landing on "choice" or "situation" blocks and selecting cards that describe consumer choices and real life events that impact their energy consumption and annual energy bills. As the players pass gasoline stations or energy bill gates, they must pay annual expenses as defined by their original cards, with amounts altered by the choices they've made along the way. Gasoline cards are collected to represent their total consumption. Too many gas guzzling vehicles can result in total depletion of their gasoline supply - at which point everyone must walk or ride the bus.

The game provides some context for serious classroom discussions about our current energy situation. Discussion points can include:

- How did the choices you made affect how much money you had at the end?
- Which home system wound up with the most money at the end? Why?
- Which car wound up with the most gas cards at the end? What do you know about this type of car? (big, gas guzzler) How did having a lot of gas cards affect the owner's financial state?
- What do you think the carbon tax you paid at the end of the game represents?
- Why did gasoline and home energy prices increase throughout the game?
- Do you think this will be an issue in our own lives?
- Did any teams run out of gasoline cards? What does this represent? Which type of transportation contributed most to the depletion of gasoline cards?

# Instructions: Access to the *Energy Choices Board Game*

The Energy Choices Board Game is one of the activities we use in 8th grade classrooms to introduce students to the concept that energy is an important aspect of their lives and to make them understand that they can indeed make personal choices that affect our overall energy situation.

Our goal is that this game makes energy more relevant to the students so that they are more receptive to the more science oriented energy lessons that follow.

The Energy choices game consists of multiple files, including:

**File Description / Directions**

- Energy Board Game (1 per group) Board game (11x17") print in color and laminate for best results
- Activity: The Energy Game (1 per player) Activity sheet for players with directions and discussion questions
- Group Directions (1 per player in classroom setting) Activity sheet for players in classroom with multiple simultaneous games – each game group competes for classroom winner
- Energy Game Cards (1 set per game) Car cards, choice cards and situation cards. File formatted for front and back printing on business card forms (8.5 x 11")
- Energy Game System Cards (1 set per game) House system cards – print double sided on card stock and cut apart
- Energy Game Money: Various denominations of bills appropriate for expenses and payouts in this game. Print each denomination on different color paper (8.5 x 11") and chop apart.
- Award Sheets Awards for groups in class. Print one set for each class

Game requires 4 sided and 8 sided dice for each board and game makers.

The game takes 40-60 minutes, depending on number of players and ease in students handling money transactions

The financial support from the National Science Foundation is gratefully acknowledged in the development and distribution of this game. (DGE-0338216, DUE-0428127)

Comments welcome: Susan Powers, Clarkson University (sep@clarkson.edu)

# Energy Choices

## *A board game for middle school children*

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A board game has been developed by students and staff from Clarkson and St. Lawrence Universities as part of their NSF-Funded K-12 Project-Based Learning Partnership Program. The game is used to introduce the concepts of energy use in our lives and the very real impact that personal choices can have on our energy consumption, energy bills and fuel supply.

The game begins as each student selects cards that define their mode of transportation and home design (see examples on reverse). The players roll dice and move around the board, landing on "choice" or "situation" blocks and selecting cards that describe consumer choices and real life events that impact their energy consumption and annual energy bills. As the players pass gasoline stations or energy bill gates, they must pay annual expenses as defined by their original cards, with amounts altered by the choices they've made along the way. Gasoline cards are collected to represent their total consumption. Too many gas guzzling vehicles can result in total depletion of their gasoline supply – at which point everyone must walk or ride the bus.

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- Which car wound up with the most gas cards at the end? What do you know about this type of car? (big, gas guzzler) How did having a lot of gas cards affect the owner's financial state?
- What do you think the carbon tax you paid at the end of the game represents?
- Why did gasoline and home energy prices increase throughout the game? Do you think this will be an issue in your own lives?
- Did any teams run out of gasoline cards? What does this represent? Which type of transportation contributed most to the depletion of gasoline cards?

For more information: contact Susan Powers, Clarkson University (sep@clarkson.edu; 315-268-6542)
Game files on-line for downloading and printing: www.clarkson.edu/k12
 revised 12/08

## Example cards used in the Energy Choices game

### Two-door hybrid

(Two Seater) Automatic Transmission
Small hybrids offers great mileage and aids in reducing pollution and global warming by switching between a gas engine and electric motor.
Mileage (City/Hwy): 57/56

# of Gas Cards: 1

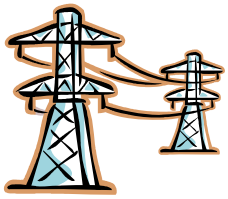
### Big, luxury vehicle

Automatic Transmission
This sleek black sedan is a great car if you like fast and beauty. However it requires Premium gasoline which is expensive and it needs a lot of it.
Mileage (City/Hwy): 19/27

# of Gas Cards: 5

### System B: On-Grid Electric Large Size (3,000 sq. ft)

This home's electricity comes from the national electric grid. Heating which comes from natural gas, is included in the energy bill.



Minimal Insulation (1)
Central Air Conditioning
Set-Up Cost: $0
Annual Energy Bill: 3,900 zaps
Carbon Tax: $2,500

### System E: Supplemental Solar System Average Size (1,800 sq. ft)

This home's electricity comes from both the electric grid and a supplemental 1KW solar panel system. Excess energy is sold back to the electric company. Heating, which comes from natural gas, is included in the energy bill.

Moderate Insulation (2)
Set-up Cost: $6,000
Energy Bill: 1,000 zaps
Carbon Tax: $600

### Situation:

Heat Wave strikes!

All players pay:

| | |
|---|---|
| if Air Conditioning pay | $200 |
| if Fans pay | $50 |
| if Insulating Window Shades pay | $0 |

### Situation:

Tax Rebate for alternative energy production!

Any player with an alternative energy system receives $500.


**Choice:** You win the festival for the most beautiful holiday lights decoration!! You will be giving the key to the town and one week vacation in Disney World.

Cash Prize: $200 Energy Bill: +1,000 zaps

**Choice:** Ride the bus?

Cost: $300

Present this at the next gas station and you don't have to buy gas.

For more information: contact Susan Powers, Clarkson University (sep@clarkson.edu; 315-268-6542)
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# Activity- The Energy Choices Game - Group

## 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.

GOALS: Get to the end of the board in the fastest time, saving the most energy, by making the smartest choices.

This is a TEAM EFFORT where groups are competing against each other, not the individuals within the game.

## 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 will be necessary. The banker plays a critical role in the game as he/she ensures the fairness of competition as well as keeps track of all monetary and energy resources.

**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

**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 TITILED 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.

**Roll the die to determine who will go first.**

## 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:
    a) If you are driving a car, pay for gasoline and take gasoline cards.
    b) 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 OR class time runs out.
2. Pay the carbon tax for fossil fuel energy consumed ($100 for each gasoline card and 1/3 of the final energy bill)
3. Each player should count their remaining funds and complete the tally sheet. The banker should fill out the group banker tally sheet.
4. Certificates will be awarded to teams for various accomplishments.

## 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. The card will have information about the vehicle's gasoline average miles per gallon and the number of gas cards you will have to buy each time you pass a gas 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 gasoline 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.

# Discussion Questions

1. What was your group strategy throughout the game?

2. Did all players make it the end of the board?

3. How would you change your strategy if you were to play again?

4. What did you learn about the energy problem?

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 |
|---|---|---|---|
| | | | |
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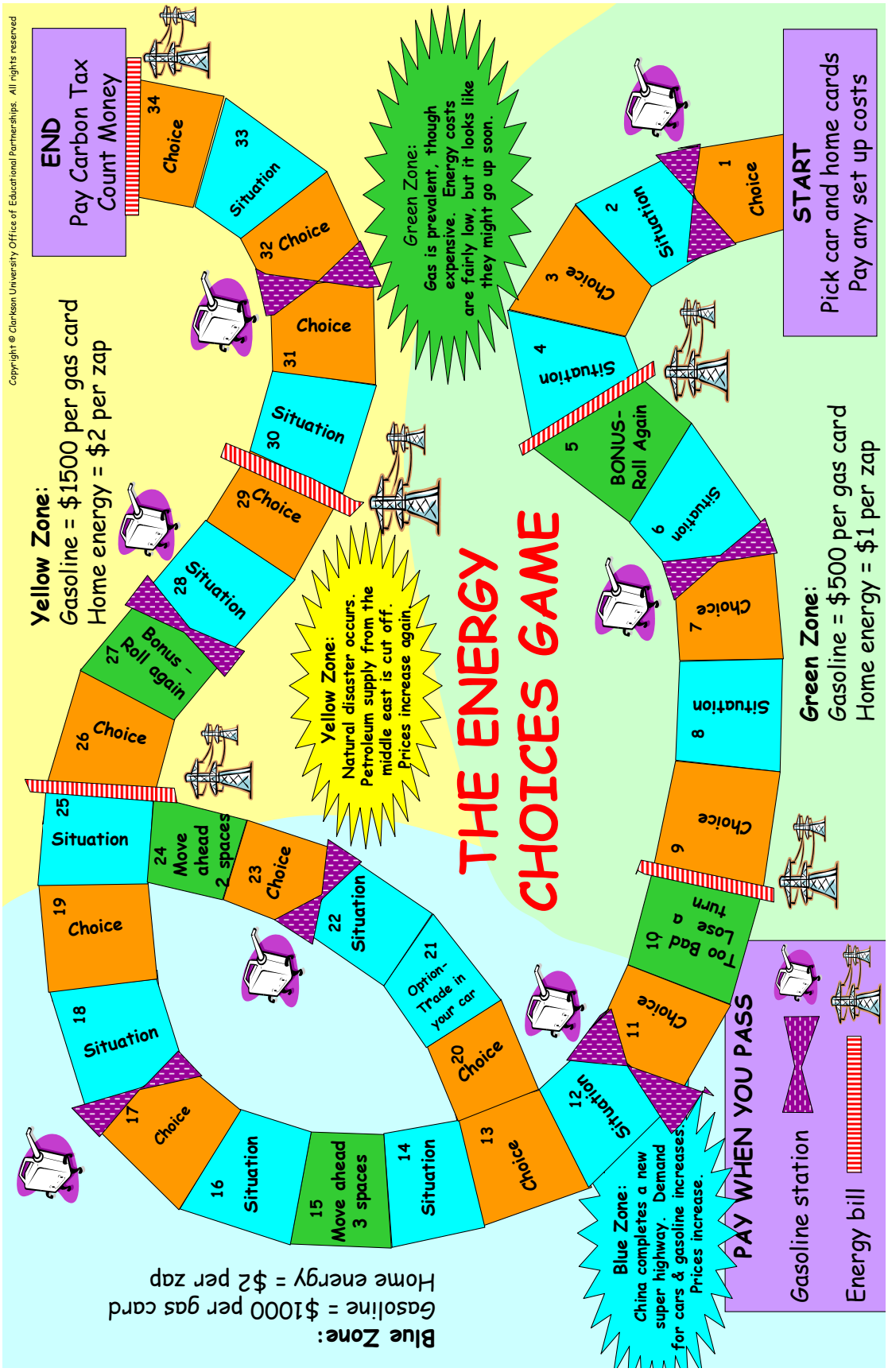
| **Transportation** | |
|---|---|
| **Vehicle** | **# Gasoline Cards** |
| | |
| | |
| | |

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

| Banker Tally Sheet | | | | | |
|---|---|---|---|---|---|
| **Team Name:** | | | | | |
| | **Name** | **Final Energy Bill** | **Total Money** | **Number of Gas Cards** | **Ending Space** |
| **Player 1:** | | | | | |
| **Player 2:** | | | | | |
| **Player 3:** | | | | | |
| **Player 4:** | | | | | |
| **Total:** | | | | | |

# GAME BOARD—ENERGY CHOICES BOARD GAME



## Small Hybrid

Automatic Transmission
The Hybrid offers great mileage and aids in reducing pollution and global warming by switching between a gasoline engine and electric motor.

Mileage (City/Hwy): **48/47**

**1 Gasoline Card**

## Manual Transmission Compact

Manual Transmission
This small hatchback offers great mileage, which makes it comparable to Hybrids and aids in reducing pollution and global warming.

Mileage (City/Hwy): **38/46**

**2 Gasoline Cards**

## Compact Hybrid Electric Vehicle

(Two Seater) Automatic Transmission
This hybrid offers great mileage and aids in reducing pollution and global warming by switching between a gasoline engine and electric motor.

Mileage (City/Hwy): **57/56**

**1 Gasoline Card**

## Powerful Luxury Car

Automatic Transmission
A great car for speed and style. However, it requires Premium gasoline and a lot of it. This car aids in producing pollution.

Mileage (City/Hwy): **19/27**

**4 Gasoline Cards**

## BIG Black and Powerful SUV

Automatic Transmission
This 2-wheel drive is a BIG SUV. It is a powerful car, but requires many trips to the gas station.

Mileage (City/Hwy): **14/18**

**5 Gasoline Cards**

## Deluxe Sedan

Automatic Transmission
This new model is a roomy and powerful car. It offers average mileage.

Mileage (City/Hwy): **20/30**

**3 Gasoline Cards**

## Mid Size Sedan

Automatic Transmission
This mid size car offers average mileage.

Mileage (City/Hwy): **23/32**

**3 Gasoline Cards**

## Mid Size Sedan

Manual Transmission
A nice, compact and comfortable car that offers average mileage.

Mileage (City/Hwy): **24/31**

**3 Gasoline Cards**

## Sports Convertible

(Two Seater) Manual Transmission
This Convertible is a fast and furious kind of car. However it requires a lot of gasoline and emits a lot of pollution.

Mileage (City/Hwy): **12/20**

**5 Gasoline Cards**

## Standard SUV

Automatic Transmission
This 2-wheel drive is a medium size SUV. It requires many trips to the gas station.

Mileage (City/Hwy): **16/21**

**4 Gasoline Cards**

TRANSPORTATION CARD

TRANSPORTATION CARD

TRANSPORTATION CARD

TRANSPORTATION CARD

TRANSPORTATION CARD

TRANSPORTATION CARD

TRANSPORTATION CARD

TRANSPORTATION CARD

TRANSPORTATION CARD

TRANSPORTATION CARD

ECONOMICS FOR EVERYONE
A CURRICULUM RESOURCE BY OSSTF/FEESO

## CLOTHES DRYERS

You are sick of wet clothes;
time to get something to dry them!

| | Price | Annual Energy Use |
|---|---|---|
| Gas Clothes Dryer | $750 | +150 zaps |
| Electric Clothes Dryer | $500 | +300 zaps |
| 50 yard Clothes Line | $20, lose turn | + 0 zaps |

## COOKING

Thanksgiving, and your stove is dead! What will be the best for cooking?

| | Price | Annual Energy Use |
|---|---|---|
| Gas Stove | $1200 | +200 zaps |
| Electric Stove | $1000 | +350 zaps |
| Microwave | $500 | +50 zaps |

## POOL HEATERS

Summer time, but you need a pool.
Pick one to swim in.

| | Price | Annual Energy Use |
|---|---|---|
| Above-ground Gas | $650 | +800 zaps |
| Above-ground Propane | $1000 | +1,500 zaps |
| Solar | $3000, lose turn | + 0 zaps |

## TOOLS

You have to make a birdhouse for school;
What tools do you want to use?

| | Price | Annual Energy Use |
|---|---|---|
| Power Tools | $ 200 | +50 zaps |
| Hand Tools | $ 20, lose turn | +0 zaps |

## FREEZERS

You just bought tons of frozen veggies; You need something to put them in.

| | Price | Annual Energy Use |
|---|---|---|
| 2 Door Frost Free | $500 | +100 zaps |
| Energy Star Chest | $650 | +50 zaps |
| Grandma's | $0 | +500 zaps |

## ENTERTAINMENT

Time for some relaxing.
What would you like to do?

| | Price | Annual Energy Use |
|---|---|---|
| Stereo | $100 | +20 zaps |
| Mp3 player | $250 | +10 zaps |

## CLEANING

WOW, it's a mess in here!
Which is the best way for you to clean?

| | Price | Annual Energy Use |
|---|---|---|
| Vacuum Cleaner | $100 | +30 zaps |
| Broom | $ 10, lose turn | +0 zaps |

## EXTENDED FAMILY VISIT!

If you have a small car (hybrid, compact, sports or luxury), you will need to rent a mini-van for the weekend.

Cost- $500

## GRILLS

Mmm … the barbeque beckons!
How are you going to cook your hamburger?

| | Price | Annual Energy Use |
|---|---|---|
| Gas | $200 | +30 zaps |
| Electric | $100 | +70 zaps |

## COMPUTERS

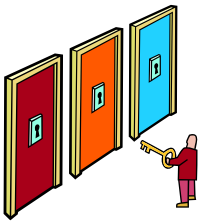
Computers are now necessary to communicate.
But which is better?

| | Price | Annual Energy Use |
|---|---|---|
| Desktop | $500 | +200 zaps |
| Laptop | $1,500 | +100 zaps |

CHOICE CARD

CHOICE CARD

CHOICE CARD



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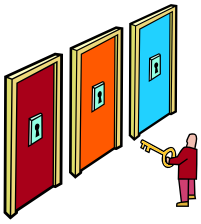

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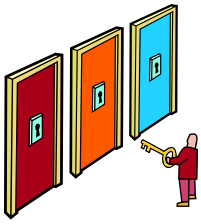
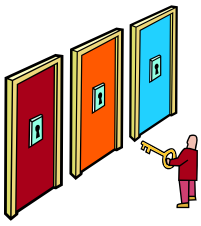


SITUATION CARD

CHOICE CARD



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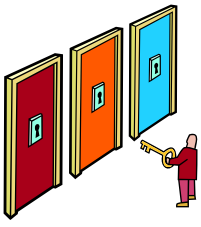

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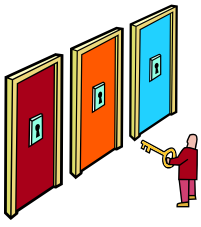


**BEEN CAUGHT STEALING**
electricity from the exercise bikes at the YMCA!!!!!

Pay $100 in legal fees.

**HEAT WAVE STRIKES!**

All players: If you have:
Air Conditioning pay $200
Fans pay $50
Insulating Window Shades pay $0

**CAR FIRE!**
Your car is destroyed in a fire!

Your insurance pays for a new one.
Select a new Transportation Card.

**3 WEEKS OF BELOW ZERO TEMPS!**

All players: If you have:
Minimal Insulation pay $500, Medium Insulation pay $300

**STREAM DRIES UP FOR TWO WEEKS!**

All players: If you have a micro hydro energy system, pay $300 to the electric utility for energy use.

**POWER OUTAGE STRIKES!**

Each player, who does not have a supplemental energy system (wind, solar, hydro, etc.), should pay $750 for a portable generator

**TAX REBATE**
for alternative energy production!

Each player who has an alternative energy system (wind, solar, or hydro) receives $500.


**ICE STORM HITS**
and destroys the electric power transmission lines throughout the town. They will take months to fix.

Pay $750 for a generator if you do not have a supplemental energy system (wind, solar, hydro, etc.).

**TWO WEEKS OF CLOUDY WEATHER!**

All players: If you have a solar PV system, pay $300 to the electric utility for energy use.

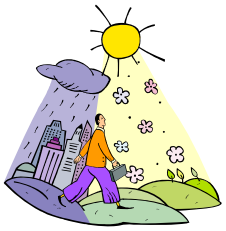
**TWO WEEKS OF UNUSUALLY CALM WEATHER!**

All players: If you have a wind turbine, pay $300 to the electric utility for energy use.

SITUATION CARD

SITUATION CARD

SITUATION CARD



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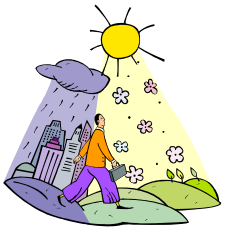

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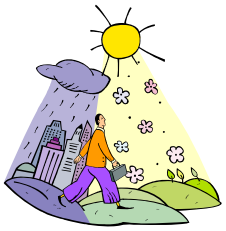

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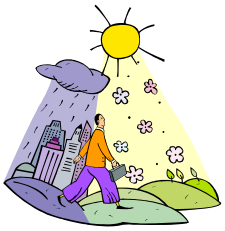

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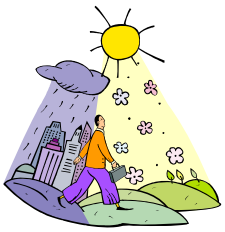


## SOLAR WATER HEATER?

You have the opportunity to add a solar water heater to your house. Want to do it?

Cost: $3,000

Energy Use: -1,000 zaps

## ADD INSULATION?

You have the chance to add insulation to your house. Want to do it?

Cost: $1,500

Energy Use : -700 zaps

## RIDE THE BUS?

Cost: $300

Present this at the next gas station and you don't have to buy gas.

## TAX REBATE FOR LOW ENERGY USE

All players: Receive a tax rebate of $500 if your energy use is less than 1,000 zaps!

## TRADE YOUR CAR IN?

You have the option to pick a new transportation card from pile. If you choose to, put your card at the bottom of the deck.

## ROAD TRIP?

You have the opportunity to take a long cross-country trip with your friends.

If you choose to, pay for gas at the last played price (# of cards for your vehicle). Bonus: You get to roll again for an extra turn.

## CASH PRIZE!

You win the prize for the most beautiful holiday light decorations!! You will be giving the key to the town and one week vacation in Disney World.

Cash Prize: $500

Energy Use: +1,000 zaps

## BUY A WIND GENERATOR?

You have the chance to add a wind generator to your home! Want to do it?

Cost: $10,000

Energy Use: -5,000 zaps

## TAKE A PLANE TRIP?

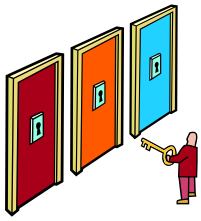
Need a vacation? If you choose to take this trip, pay for three gas cards at the last played price. Roll the car die twice, and move that distance. Pay only your Energy bill, not your gas bill.

## COOLING

It has been HOT, HOT, HOT!!
How do you wish to cool things down?

| | Price | Annual Energy Use |
|---|---|---|
| Air Conditioner | $500 | +500 zaps |
| Fan | $ 50 | +50 zaps |
| Home-made Insulating Window Shades | $ 300 | +0 zaps |

CHOICE CARD



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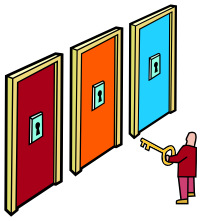

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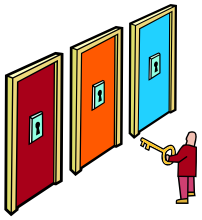

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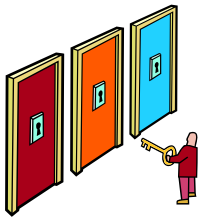

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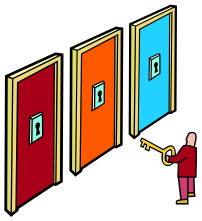

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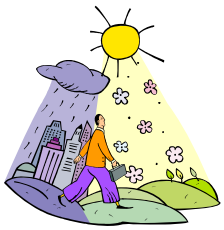

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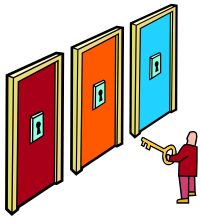

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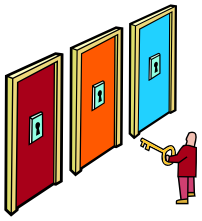

GASOLINE CARD

GASOLINE CARD

GASOLINE CARD

GASOLINE CARD

GASOLINE CARD

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GASOLINE CARD

GASOLINE CARD

GASOLINE CARD

$100 CARBON TAX

$100 CARBON TAX

$100 CARBON TAX

$100 CARBON TAX

$100 CARBON TAX

$100 CARBON TAX

$100 CARBON TAX

$100 CARBON TAX

$100 CARBON TAX

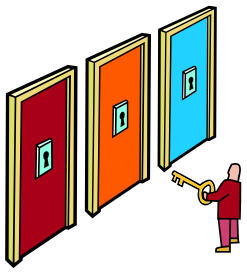
$100 CARBON TAX

## DISHWASHERS

You are sick of being the dishwasher!
Time for a machine to do the job.

| | Price | Annual Energy Use |
|---|---|---|
| Energy Star | $250 | +50 zaps |
| Gramma's | $ 50 | +100 zaps |

## CHOICE CARD



| | |
|---|---|
| $10,000 Ten Thousand $10,000 | $10,000 Ten Thousand $10,000 |
| $10,000 Ten Thousand $1,0000 | $10,000 Ten Thousand $10,000 |
| $10,000 Ten Thousand $10,000 | $10,000 Ten Thousand $10,000 |
| $10,000 Ten Thousand $10,000 | $10,000 Ten Thousand $10,000 |
| $10,000 Ten Thousand $10,000 | $10,000 Ten Thousand $10,000 |

The Energy Choices Game - Patent Pending

| | |
|---|---|
| $5,000 Five Thousand $5,000 | $5,000 Five Thousand $5,000 |
| $5,000 Five Thousand $5,000 | $5,000 Five Thousand $5,000 |
| $5,000 Five Thousand $5,000 | $5,000 Five Thousand $5,000 |
| $5,000 Five Thousand $5,000 | $5,000 Five Thousand $5,000 |
| $5,000 Five Thousand $5,000 | $5,000 Five Thousand $5,000 |

The Energy Choices Game - Patent Pending

| | |
|---|---|
| $1,000 One Thousand $1,000 | $1,000 One Thousand $1,000 |
| $1,000 One Thousand $1,000 | $1,000 One Thousand $1,000 |
| $1,000 One Thousand $1,000 | $1,000 One Thousand $1,000 |
| $1,000 One Thousand $1,000 | $1,000 One Thousand $1,000 |
| $1,000 One Thousand $1,000 | $1,000 One Thousand $1,000 |

The Energy Choices Game - Patent Pending

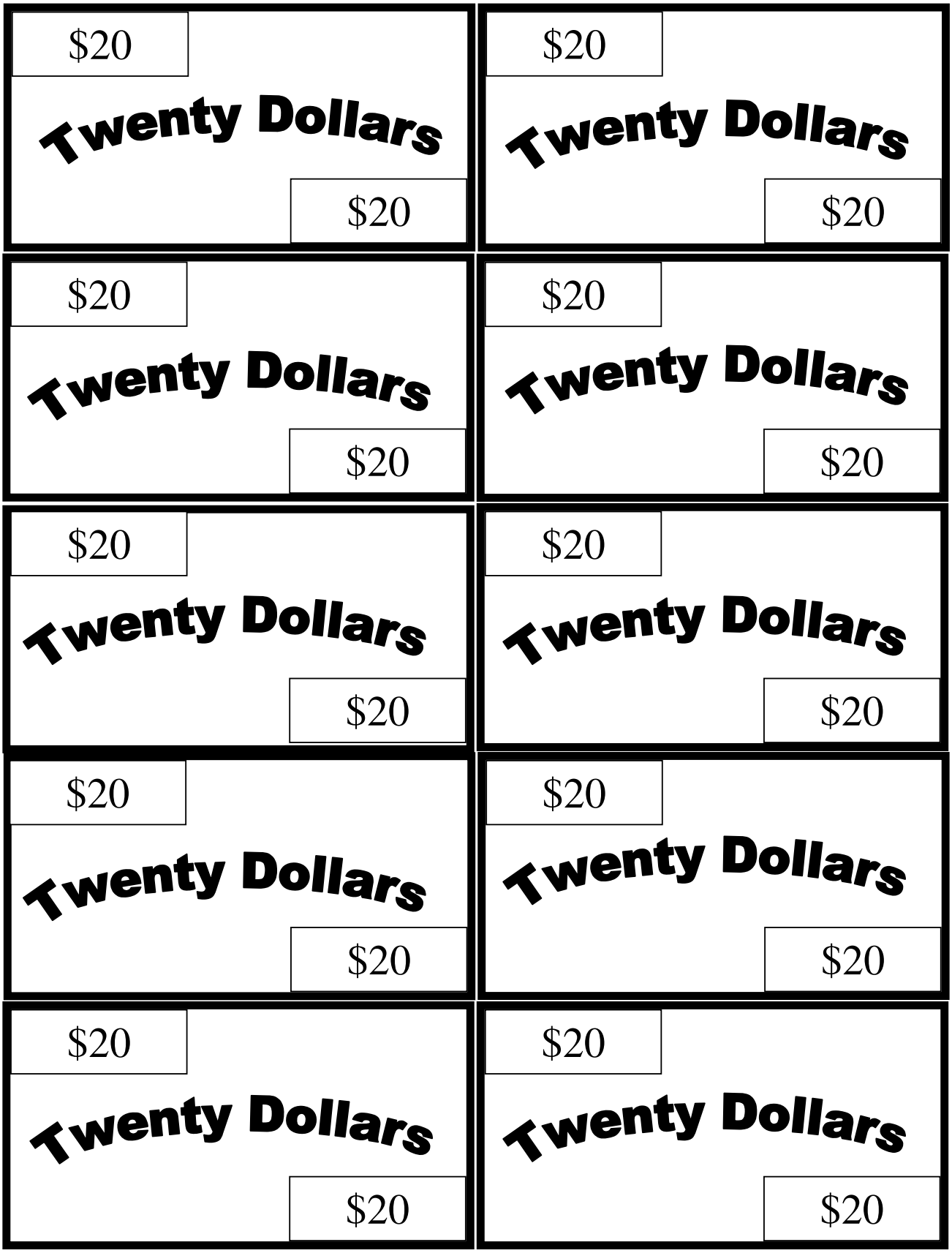
| | |
|---|---|
| $500 Five Hundred $500 | $500 Five Hundred $500 |
| $500 Five Hundred $500 | $500 Five Hundred $500 |
| $500 Five Hundred $500 | $500 Five Hundred $500 |
| $500 Five Hundred $500 | $500 Five Hundred $500 |
| $500 Five Hundred $500 | $500 Five Hundred $500 |

The Energy Choices Game - Patent Pending

| | |
|---|---|
| $100 One Hundred $100 | $100 One Hundred $100 |
| $100 One Hundred $100 | $100 One Hundred $100 |
| $100 One Hundred $100 | $100 One Hundred $100 |
| $100 One Hundred $100 | $100 One Hundred $100 |
| $100 One Hundred $100 | $100 One Hundred $100 |

The Energy Choices Game - Patent Pending


The Energy Choices Game - Patent Pending



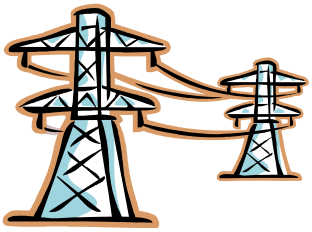

The Energy Choices Game - Patent Pending

| | |
|---|---|
| $10 Ten Dollars $10 | $10 Ten Dollars $20 |
| $10 Ten Dollars $10 | $10 Ten Dollars $10 |
| $10 Ten Dollars $10 | $10 Ten Dollars $10 |
| $10 Ten Dollars $10 | $10 Ten Dollars $10 |
| $10 Ten Dollars $10 | $10 Ten Dollars $10 |

The Energy Choices Game - Patent Pending

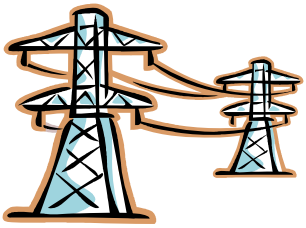
## System A

| | |
|---|---|
| Size | 1,800 sq. ft. |
| Electricity source | power lines |
| Heat Source | natural gas |
| Cooling System | fans |
| Insulation | minimal (1) |
| Set Up Cost | $0 |
| Annual Energy Use | 3,000 zaps |



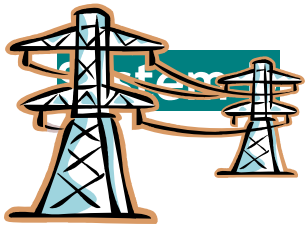
## System B

| | |
|---|---|
| Size | 3,000 sq. ft. |
| Electricity source | power lines |
| Heat Source | natural gas |
| Cooling System | AC |
| Insulation | medium (2) |
| Set Up Cost | $0 |
| Annual Energy Use | 6,000 zaps |



## System C

| | |
|---|---|
| Size | 1,500 sq. ft. |
| Electricity source | power lines |
| Heat Source | natural gas |
| Cooling System | shades |
| Insulation | medium (2) |
| Set Up Cost | $0 |
| Annual Energy Use | 2,500 zaps |

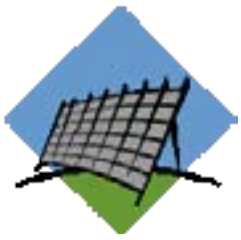


## System D

| | |
|---|---|
| Size | 1,200 sq. ft. |
| Electricity source | solar panels |
| Heat Source | wood stove |
| Cooling System | shades |
| Insulation | medium (2) |
| Set Up Cost | $10,000 |
| Annual Energy Use | 50 zaps |

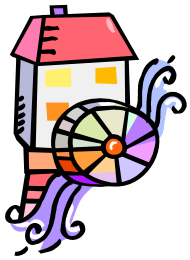
## System E

| | |
|---|---|
| Size | 1,800 sq. ft. |
| Electricity source | wind 'mill' + power lines |
| Heat Source | natural gas |
| Cooling System | shades |
| Insulation | medium (2) |
| Set Up Cost | $6,000 |
| Annual Energy Use | 1,000 zaps |



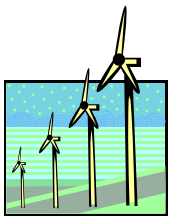
## System F

| | |
|---|---|
| Size | 2,000 sq. ft. |
| Electricity source | micro-hydro + power lines |
| Heat Source | natural gas |
| Cooling System | fans |
| Insulation | medium (2) |
| Set Up Cost | $5,000 |
| Annual Energy Use | 1,200 zaps |



## System G

| | |
|---|---|
| Size | 1,500 sq. ft. |
| Electricity source | wind 'mill' |
| Heat Source | natural gas |
| Cooling System | fans |
| Insulation | medium (2) |
| Set Up Cost | $15,000 |
| Annual Energy Use | 100 zaps |

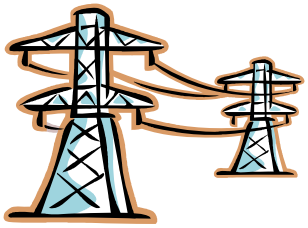


## System H

| | |
|---|---|
| Size | 3,000 sq. ft. |
| Electricity source | solar panels + power lines |
| Heat Source | natural gas |
| Cooling System | fans |
| Insulation | minimal (1) |
| Set Up Cost | $8,000 |
| Annual Energy Use | 1,500 zaps |

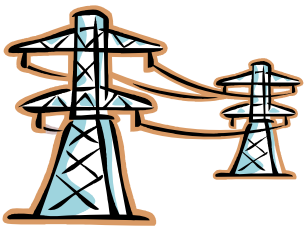
## System I

| | |
|---|---|
| Size | 2,800 sq. ft. |
| Electricity source | power lines |
| Heat Source | natural gas |
| Cooling System | fans |
| Insulation | medium (2) |
| Set Up Cost | $0 |
| Annual Energy Use | 3,500 zaps |



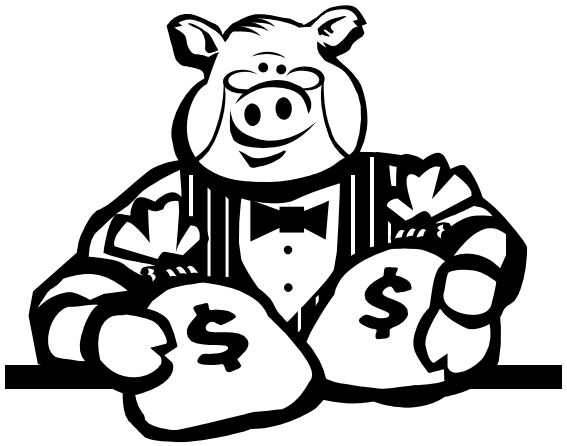
## System J

| | |
|---|---|
| Size | 1,800 sq. ft. |
| Electricity source | power lines |
| Heat Source | natural gas |
| Cooling System | AC |
| Insulation | medium (2) |
| Set Up Cost | $0 |
| Annual Energy Use | 2,500 zaps |



# ENERGY SYSTEM CARD

# The Best-Teller Award



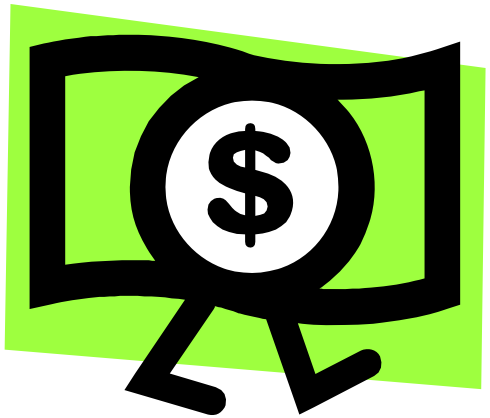
**Presented to _____**

**For being the most "account-able" team member.**

_____ _____

***(Signature of teacher)*** ***(Date)***

# Most Money Award



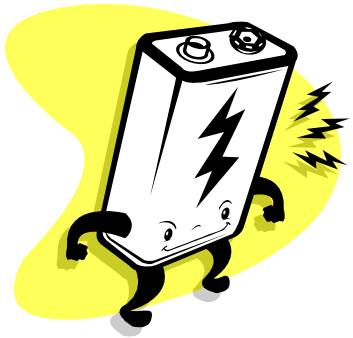
**Presented to _____**

**For having the "richest" experience.**

_____ _____

***(Signature of teacher)*** ***(Date)***

# Energy Choice Award



**Presented to _____**

**For excellence in energy use, and the lowest team energy bill.**

_____ _____

***(Signature of teacher)*** ***(Date)***

# Grand Prize


**Presented to** _____

**For having the best team strategy and the best overall results.**

_____ _____

***(Signature of teacher)*** ***(Date)***

# Helmet Hair Award


**Presented to _____**

**For conserving gasoline.**

_____ _____

***(Signature of teacher)*** ***(Date)***