



LANDOPOLY: A DECISION-MAKING GAME

Subject: Social Studies, Science

Skills: Citizenship, Decision Making, Discussion, Listening, Responsibility, Role-playing, Small Group

Duration: 1-2 lesson periods (or more depending on depth and discussion)

Setting: Classroom

Materials:

- copies of the game board (one per small group of students)
- 1 set of the Decision Cards per game board
- 1 set of the Neighborhood Potluck cards per game board
- 1 die (not a pair) per game board
- tape
- scissors
- 4 different-colored playing pieces per game board (construction paper squares or pieces from another game)

Michigan Curriculum Framework Content Standards and Benchmarks:

- **Science LEC- III.5 e-4:** Strand III. Using Scientific Life Science Knowledge, Standard 5. Ecosystems (LEC), Benchmark e-4. Describe positive and negative effects of humans on the environment. (Key concepts: Human effects on the environment- garbage, habitat destruction, land management, renewable and non-renewable resources. Real-world contexts: Household wastes, school wastes, waste water treatment, habitat destruction due to community growth, reforestation projects, establishing parks or other green spaces, recycling.)
- **Science II.III.5.MS 5:** LEC Ecosystems, Standard III.5. Describe how materials cycle through an ecosystem. Benchmark MS 5. Explain how humans use and benefit from plant and animal materials.
- **Social Studies II.2.LE.2:** Strand II. Geographic Perspective, Standard 2. Human/Environment Interaction, Benchmark LE 2. Describe the location, use, and importance of different kinds of resources and explain how they are created and the consequences of their use.
- **Social Studies IV.1.LE.2:** Strand IV. Economic Perspective, Standard 1. Individual and Household Choices. Benchmark LE 2. Identify the opportunity costs in personal decision making situations.
- **Social Studies IV.1.LE.3:** Strand IV. Economic Perspective., Standard 1. Individual and Household Choices.. Benchmark LE 3. Use a decision making model to explain a personal choice.
- **Social Studies VI.2.LE1:** Strand VI. Public Discourse and Decision-Making, Standard 2. Group Discussion, Benchmark LE 1. Engage each other in conversations that attempt to clarify and resolve issues pertaining to local, state, and national policy.
- **Social Studies II.2.MS 3:** Geographic Perspective, Standard 2. Describe, compare and explain the locations and characteristics of ecosystems. Benchmark MS 3. Explain the importance of different kinds of ecosystems to people.
- **Social Studies II.2.MS 4:** Geographic Perspective, Standard 2. Describe, compare, and explain the locations and characteristics of ecosystems. Benchmark MS 4. Explain how humans modify the environment and describe some of the possible consequences of those modifications.
- **Social Studies II.2.MS 5:** Geographic Perspective, Standard 2. Describe, compare and explain the locations and characteristics of ecosystems. Benchmark MS 5. Describe the consequences of human/environment interactions in several different types of environments.
- **Social Studies VI.2.MS 1:** Public Discourse and Decision Making, Standard 2. Engage peers in constructive conversation about matters of public concern. Benchmark MS 1. Engage each other in conversations which attempt to clarify and resolve national and international policy issues.

Kent County Collaborative Core Curriculum (KC⁴):

- **Science:** 3:5
5:1, 5:4
- **Social Studies:** 3:7
4:4, 4:8, 4:9
6:2, 6:3, 6:4, 6:5, 6:7, 6:8, 6:9, 6:10
7:3, 7:4, 7:7, 7:9
8:3, 8:6, 8:7, 8:9

OVERVIEW

Students play a board game to develop their land-use decision-making skills. Through the various choices posed in the game, students are asked to consider both economic and environmental well-being in making land-use decisions.

OBJECTIVES

After participating in this activity, students will be able to:

- Understand and discuss land-use practices that affect woodlands, farmlands, open space, and wetlands.
- Recognize personal priorities and make decisions with regard to woodlands, farmlands, and wetlands.
- Describe some of the economic factors that often affect land use.
- If the game is played in teams, students will use group decision-making skills such as listening, brainstorming, compromise, vote, and/or integration to make team decisions.

BACKGROUND

We all make choices every day (what to wear, what to eat, how much time to spend on homework, and so on). Some decisions require advanced cognitive skills such as consequential and critical thinking. With the various choices presented in this game, students are asked to consider economic, social and environmental well being in making their decisions. This process is good practice for real-life situations that students may encounter.

What is it that compels individuals to make the decisions they do? Money (economics) is often the biggest factor. Usually, personal interests and preferences play a major role. Decisions also can be influenced by personal values such as concern for the environment or social equity. When it comes to land use issues, the health of the environment is one of the most important factors to consider. However, individual monetary gain and the stability of the regional economy

often override consideration for the environment. A healthy marriage of ecological concerns and economic vitality could be called economics. We use the idea of economics as a framework for making land use decisions in this lesson.

Because our society typically prioritizes economic over environmental preservation, the game played in this lesson tends to reward environmental sensitivity that may incur economic costs. Land use decisions should be based on careful analyses of the expected consequences. Economic, ecological, and social implications of alternative courses of action should be considered, and the best practices of democratic citizenship should be employed in the land use decision making process.



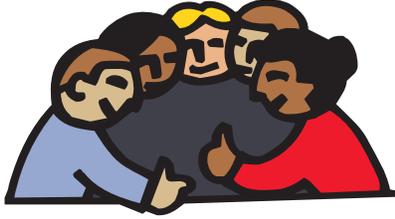
4. State that the class will be playing a game to explore land use decisions. Students should carefully weigh economic, social, and environmental factors when making their choices. Choosing to protect or preserve the environment, even at economic cost, will typically (but not always!) be rewarded. (Alternatively, you may choose to have students first play without instruction, then discuss economics, ecology, and social factors during and after the game. The game can then be played again with those factors in mind.)

5. Divide the class into groups to play the game. The game may be played by two to four players or two to four teams of players. Each game will last approximately 30-45 minutes.

6. Review the rules of the game with the students:
- Each player (or team) selects a game piece and places it on the space marked Start. Each player rolls the die and the player rolling the highest number goes first; play proceeds in a clockwise direction.
 - The first player rolls the die and moves his or her playing piece the number of spaces indicated on the die. The players move in the direction indicated by the arrows on the board. When a player lands on a blank space, his/her turn is over and play advances to the next player. When a player lands on a space marked Neighborhood Potluck s/he may choose a card, read it aloud, and follow the directions on the card (move forward 1, or move backward 1).
 - Decision Cards: when a player lands on a Decision Card space, s/he must select the top card on the pile (cards should be folded consequences down). An opponent reads the "Decisions" portion of the card aloud. (Do not read out the "Consequences".) The player has a maximum of two minutes to make a choice. If playing in teams, team members may discuss the decision quietly. When a player announces his or her decision, the person holding the card reads the "Consequences," which tell how many spaces the player has earned or lost for the decision that was made. The player must follow the instructions given on the card and return the card to the bottom of the pile. The player's turn continues until landing on a blank space. Play then moves to the next player or team.
 - The game is over when a player reaches the WINNER space at the end of the game board.

PROCEDURE

- Before doing this activity:
 - Read the game instructions in number six.
 - Make a game set for each group that will be playing. Each group will need a game board, a set of Decision Cards, and a set of Neighborhood Potluck cards.
- Ask students to describe decisions they have made recently. Have them cite examples of particularly good or poor choices. Why was the choice a good one or a poor one? As an example, ask:
 - What considerations are important to you when you are choosing a pair of shoes to buy? (*Considerations could include the cost, the quality, the color or style, the impact of the manufacturing process on the environment, whether or not workers in the factory received a fair wage, and so on.*)
 - How can poor choices be a good experience? (*We can learn from our mistakes.*)
- Discuss economics before you begin to play. Have students identify values that should be considered when land use decisions are being made. Conclude with a review of the many economic, social, and ecological factors that should be considered when making land use decisions. These can include:
 - Ecological factors - preserving and protecting natural areas for wildlife habitat, rainwater capture/flood control, or wise/thoughtful land use development.
 - Social factors - ensuring that development does not place one social class at an advantage over another (such as zoning that excludes low income housing).
 - Economic factors - contributing to economic production and vitality, personal gain, wise thoughtful land use development.



- When students understand the rules, start playing the game. If playing the game in teams, allow teams time to develop their method of decision making. A brief explanation of the difference between majority vote and consensus may be appropriate.
- After the games have ended, discuss the results, who won, and why did the winner reach the end more quickly than others? What did players think about while making decisions? Students can revise or confirm the considerations they made in the opening discussion.
NOTE: The consequences specified on each Decision Card reward students for choosing to protect farmland, forests, wetlands, and open space. If you wish other values to be considered, have the class or a team of students develop a new set of Decision Cards and substitute them for the provided Decision Cards before the game begins.
- Discuss why it is important to consider woodlands, farmlands, and wetlands in scenarios like those presented in the game. Have students research community actions regarding land resource management in their own area. Do they think wise decisions were made?

ASSESSMENT OPTIONS

- During the game, observe students as they demonstrate their decision making skills and their understanding of land use issues through the choices they make that allow them to move ahead on the game board; or observe students' justification and reasoning for their decisions.
- Have students identify additional considerations (including economic, ecological and social factors) that are important when making decisions about how land is used.
- Give each student a Decision Card and have him/her write essay answers to some of the following questions:
 - Which choice would you make?
 - Why would you choose that option?
 - What are the environmental consequences of that decision?
 - Are you willing to accept those consequences? Why or why not?
 - What are the economic consequences of the decision? Are you willing to accept those consequences? Why or why not?
 - What can you do to make the negative environmental, economic or social consequences any better?

Adaptations/Extensions

- Have students write a series of Decision Cards that apply to the management of specific woodlands, farmlands, or wetlands in their community, for example state parks, lakes, rivers, or nature trails. Include current political debates if possible.

Computer Extensions

- Michigan Land Use Institute. [Homepage](http://www.mlui.org/). Mar. 2002. 19 Mar. 2002. <<http://www.mlui.org/>> (The Institute is very involved in land use issues and policies and will be able to offer thorough information and advice. The site contains the latest information on policies in the legislature and a collection of articles on Michigan land use problems and issues.)

SOURCE

Landopoly was adapted from the lesson Hydropoly. Hydropoly from [WOW! Wonders of the Wetlands](#), is used with permission from Environmental Concern Inc. For further information, contact Environmental Concern, Inc. at 410-745-9620 or visit <www.wetland.org>.

ADDITIONAL RESOURCES

Contacts:

American Planning Association (APA) or the Michigan Chapter of the APA
Local City Planning Division
Local Planning Commission
Michigan Department of Environmental Quality
Michigan Department of Natural Resources
Michigan Land Use Institute
The Nature Conservancy
Timberland Resource Conservation and Development
United Growth for Kent County
U.S. Environmental Protection Agency (EPA), Env. Ed. Program
U.S. Fish and Wildlife Service (FWS), Public Affairs

References and Teacher Resources

Caduto, M. [A Guide to Environmental Values Education](#) UNESCO-UNEP International Environmental Education Program, Environmental Education Series, no. 13. Paris, France: UNESCO, 1985.
Hungerford, Harold, et al. [Investigating and Evaluating Environmental Issues and Action Skill Development Modules](#). Champaign, IL: Stipes Publishing Co., 1992.
Miller, G. Taylor, Jr. [Resource Conservation and Management](#). Belmont, CA: Wadsworth Publishing Company, 1990.
Polesetsky, Matthew, ed. [Global Resources: Opposing Viewpoints](#). San Diego, CA: Greenhaven Press, Inc., 1991.

Additional Lessons

[Project WILD Aquatic](#): To Dam or Not to Dam, Pg. 134-137; Dragonfly Pond, Pg. 154-159; Aquatic Times, Pg. 126-128.
[Project WILD](#): Shrinking Habitat, Pg. 258-261.
[WOW! Wonders of the Wetlands](#): *Hear Ye! Hear Ye!*, Pg. 253-259.

CONCEPTUAL FRAMEWORK REFERENCE

IA1,IF3,IVD1,IVE1,IVF1,VA1,VB1,VC1,VD1

TEACHER MEMOS

Landopoly Decision Cards

NOTE TO TEACHERS: The consequences specified for each decision reflect a certain set of values. Ecological, economic and social considerations are all represented by the decisions. However, the choices to protect and preserve natural lands are generally (but not always!) rewarded. Alternative consequences and value systems more specific to your community may be substituted by you or a team of class members.

Decisions! Decisions!

You have inherited \$500,000! Now you can buy your dream home. You narrow your choices down to two properties:

- (A) Build a new home nestled in a quiet upland forest, or
 - (B) Buy a house in a nice city neighborhood.
- Both properties cost the same. Which will you choose?

FOLD HERE

Consequences:

- (A) Building in the middle of a forest will surely harm or destroy forest habitat! Move back 3 spaces.
- (B) If you move into a previously built home, you will not harm any natural habitat. Move ahead 3 spaces.

Decisions! Decisions!

You live in a bustling city that lies near the a river. It is election day for a new mayor:

Candidate A promises increased economic growth and more jobs. He supports the construction of a huge new shopping mall near the river.

Candidate B proposes to increase economic growth by promoting travel and recreation. He also wants to build a mall, but on an abandoned building site near a major highway. Will you vote for A or B?

FOLD HERE

Consequences:

- (A) Building close to the river will surely harm or destroy woodlands, farmlands, and wetlands. Move back 3 spaces.
- (B) It makes sense to build in an area that is already developed, keeping natural lands undeveloped so they can add to the economy in other ways. Move ahead 3 spaces.

Decisions! Decisions!

You are a kind-hearted person who donates \$200 each year to a charity or good cause.

You have been asked to give money to either:

- (A) a conservation organization that helps protect woodlands, farmlands, and wetlands worldwide, or
- (B) a local Boy Scout troop.

If you choose A, you will be helping to preserve land and protect habitat all over the world. If you choose B, you can ask the Scouts to use the money to clean up or restore a small lot, park, or highway in your community. Which will you choose?

FOLD HERE

Consequences:

Both choices have their merits and positive results. Move ahead 1 space.

Decisions! Decisions!

You are a farmer who is getting older and thinking about retiring. Part of your land is wetlands (a low-lying area that stays very wet). You need to sell your land to earn retirement money. You are offered money from: (A) someone who will develop the land for housing or business, and (B) a conservation organization that will keep the land as a wetland preserve. The conservation organization will also provide you with a tax break. Both options will give you enough money for retirement, but the developer offers you twice as much money as the conservation organization. Which will you choose?

FOLD HERE

Consequences:

- (A) Wetlands should be preserved whenever possible. Move back 2 spaces.
- (B) Thank you for accepting less money to preserve valuable wetlands! Move ahead 3 spaces.

Decisions! Decisions!

You are a town zoning officer — you decide how land in your town can be used, including what can be built on it if anything at all. One of only a few woodlands in the town is due for rezoning. The townspeople are encouraging you to vote it one of two ways on the zoning: (A) allow low-income housing to be built there (this housing is badly needed, although other sites are available for it), or (B) zone the area to preserve the woodlands. Which will you choose?

FOLD HERE

Consequences:

- (A) The housing is needed, but it can be built in another location. The woodland provides valuable habitat for wildlife. Move back 2 spaces.
- (B) With so few woodlands in town, the loss of this one would be most unfortunate. Choosing another site more development provides the low-income housing that is so badly needed. Move ahead 2 spaces.

Decisions! Decisions!

You are a very wealthy landowner who is about to build a housing development that will make you even richer! The land contains some woodland and wetlands which would be destroyed by the project. You can: (A) cancel the project, or (B) go to great expense to build new wetlands and plant new trees nearby to replace the habitats that will be destroyed. Which will you choose?

FOLD HERE

Consequences:

- (A) Move ahead 3 spaces.
- (B) Move ahead 1 space. The plan to replace the woodland and wetland is a decent choice. However, artificial habitats may not be as healthy as natural ones. In addition, there will be great financial cost to replace the habitats.

Decisions! Decisions!

You are a farmer. You own 100 acres that you plant in corn near a river. Times are tough financially, and you and your spouse are expecting a child. In the past, you have left a strip of land along the waterway unplowed. The natural growth of the wetland plants (called a buffer strip) helps keep the water clean and provides habitat for animals. But if you planted corn there instead you would have 15 extra acres of crops and earn an additional \$3,000. You've heard about a government program that will pay you \$1,000 to keep the buffer strip in place. Will you leave the buffer strip (A) or plant corn (B)?

FOLD HERE

Consequences:

- (A) Move ahead 4 spaces. Thank you for making a difficult choice to protect the river!
- (B) Move back 2 spaces.

Decisions! Decisions!

You work for the state's highway department. A new road being built will destroy six acres of Great Lakes wetland. To get the permit to build the road, the department had to promise to replace the wetlands. You are in charge of hiring a company to do the work and you must choose between two companies. The expensive one guarantees that the new wetlands will survive. The cheaper one does not, but thinks that their wetland will be okay. Will you (A) spend more and get the guarantee, or (B) save state money and take a chance on the wetlands survival?

FOLD HERE

Consequences:

- (A) Move ahead 3 spaces.
- (B) Move back 3 spaces.

Decisions! Decisions!

You have designed your dream house, and you are very proud of it. The plans show a long driveway through a field to a beautiful house nestled back in the woods. The house will be nice and cool in the summer and protected from cold winds in the winter. Many of the trees on your property will have to be cut down to make space for the house and garage. Will you (A) build the house as planned, or (B) have a shorter driveway and build the house in the field in front of the woods? (This will be more uncomfortable, but it will allow wildlife to continue to enjoy the woods.)

FOLD HERE

Consequences:

- (A) Move back 2 spaces.
- (B) Move ahead 2 spaces. That is a great change of plans! The comfort of the house can be maintained by incorporating other energy saving features and by planting additional trees around the house.

Decisions! Decisions!

You are a developer who is starting to hear that people like to buy homes in subdivisions that have areas reserved for wildlife. You have just purchased a piece of land with some woods and a stream flowing through one corner of the property. You could build 20 homes if you develop in the usual way, or you could build 15 homes and save part of the woods and stream for all the homeowners to use for bike paths and nature watching. Building only 15 homes may cost you some profit. Will you: (A) build 20 homes and reroute the stream, or (B) build 15 homes and hope that buyers will pay a little more for access to nature?

FOLD HERE

Consequences:

- (A) Move back 3 spaces. Natural forest and wetland habitats are important to preserve.
- (B) Move ahead 2 spaces. Although you might lose some money, you made a sensible choice for the environment. Preserving some natural areas on the property while building only 15 homes might eventually make the development more profitable than if the 20 homes were built.

Decisions! Decisions!

You are a developer who is looking at two pieces of land. The first is close to town and would be easy to develop because the city water line is very close and the local roads can handle the increased traffic. The second piece of land is a beautiful, quiet place 4 miles from town. It will cost more for wells and septic systems, which will make the homes expensive, but the peace and beauty will be more desirable to buyers. There is a farm next door, but it only smells when the wind blows. The property is on a road that is already busy, and there may be traffic jams. Will you choose: (A) the land closest to town, or (B) the land in the country?

FOLD HERE

Consequences:

- (A) Move ahead 2 spaces. It is a wise environmental and economic choice to build close to town.
- (B) Move back 3 spaces. The location might be beautiful, but the land use contributes to conflicts between farms and neighbors, urban sprawl, and rising civic costs.

Decisions! Decisions!

There is an old fire station in a part of town that is not very busy and has few fire hazards. The city council has proposed to build a new fire station next to town on prairie habitat. It will service many neighborhoods and a busy business area with fire hazards. Will you vote to: (A) remodel the old fire station instead of building on prairie habitat, or (B) build a new fire station needed next to town?

FOLD HERE

Consequences:

- (A) Move back 2 spaces. The old fire station does not need to be remodeled because it is not needed very often.
- (B) Move ahead 2 spaces. That was a good decision. It makes sense to build a new fire station when it will be put in a location where it is highly needed and will save lives.

Decisions! Decisions!

Your neighborhood contains three homes that are falling apart. A nearby business would like to buy the homes, tear them down, and put in their own parking lot. The business has an agreement with a church to use the church parking lot (except on Sundays), but the business would like to have its own parking lot. A community group also would like to buy the houses, fix them up, and sell them. Which do you support: (A) helping to fix the homes or (B) building the parking lot, which would make a great place to roller blade and ride bikes?

FOLD HERE

Consequences:

- (A) Move ahead 3 spaces. Helping to fix up the homes is great community service. You helped provide nice homes for people and created community pride.
- (B) Move back 3 spaces. Parking lots provide little benefit to neighborhoods. The parking lot might contribute to flooding from rain runoff, and a parking lot is not a safe place to play.

Decisions! Decisions!

The population of elderly citizens in your town is increasing. Currently, there is little affordable housing available for older people. A developer has proposed to build an affordable rest home on open land next to your town using environmentally sensitive land use planning. The rest home will house many elderly people. No other sites in the town are available. Will you vote to: (A) stop the development of the rest home on the open land, or (B) allow the development of the rest home for elderly people?

FOLD HERE

Consequences:

- (A) Move back 1 space. Even though it is important to save open land and habitat, sometimes it is more necessary to consider what the land will be used for and how it will be used. The developer will be using wise land use planning close to town, and the housing for the elderly is badly needed.
- (B) Move ahead 2 spaces. That took a lot of thinking! It is important to consider all the details when building projects are proposed. The developer will be using wise land use planning, the land is close to town, and the housing for the elderly is badly needed.

Decisions! Decisions!

The population of school children in your town is increasing, and you need more classrooms. A developer has proposed to remodel and add classrooms to an existing school. A different developer has proposed to build a new school using environmentally sensitive land use planning. This school will be built on farmland close to town. Will you vote to: (A) remodel and add classrooms to a current school, or (B) build a new school on farmland using environmentally sensitive land use planning?

FOLD HERE

Consequences:

- (A) Move ahead 3 spaces. It is important to keep inner-city schools updated and useful.
- (B) Stay where you are. Renovations are preferred to new construction. New construction is only justified if there are no other choices.

Neighborhood Potluck Cards

NOTE TO TEACHERS: The neighborhood potluck statements reflect a certain set of values. Alternative statements more specific to your community may be substituted by you or a team of class members.

Neighborhood Potluck

You attended a city planning meeting

Move ahead 1

Neighborhood Potluck

You visited a fruit stand and supported local apple growers by buying apples.

Move ahead 1

Neighborhood Potluck

You visited a local nature preserve or public garden.

Move ahead 1

Neighborhood Potluck

You visited a farm market and supported local farmers by buying produce.

Move ahead 1

Neighborhood Potluck

You voted to restrict plot sizes for new homes.

Move ahead 1

Neighborhood Potluck

As a developer, you devoted 10% of a new subdivision to natural areas and greenways.

Move ahead 1

Neighborhood Potluck

You walked, instead of rode in a car, to soccer practice.

Move ahead 1

Neighborhood Potluck

You voted to redevelop an abandoned business into a grocery store needed by local residents.

Move ahead 1

Neighborhood Potluck

Your youth group decides to clean up a local park and make a nature trail.

Move ahead 1

Neighborhood Potluck

You and your neighborhood association vote to buy a parcel of land in your neighborhood and turn it into a wildlife habitat and nature trail.

Move ahead 1

Neighborhood Potluck

You were caught littering.

Move back 1

Neighborhood Potluck

As a developer, you failed to create environmentally sensitive land use plans for a new subdivision.

Move back 1

Neighborhood Potluck

You voted to support the development of a new strip mall along a scenic highway.

Move back 1

Neighborhood Potluck

You skipped out on a community service project.

Move back 1

Neighborhood Potluck

You buried garbage in your back yard.

Move back 1

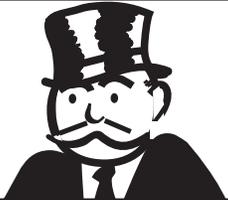
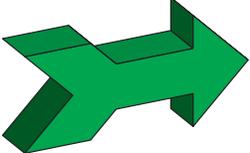
Neighborhood Potluck

You failed to vote in the last election..

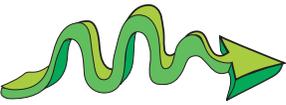
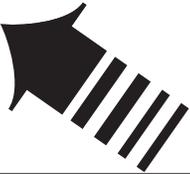
Move back 1

Place
Neighborhood Potluck
 Cards HERE

Landopoly

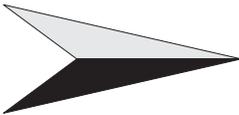
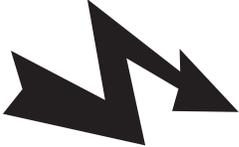
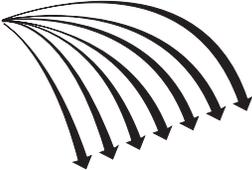
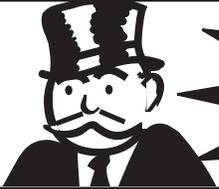
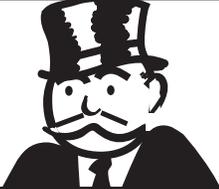
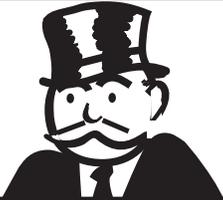
START		Neighborhood Potluck	
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		Neighborhood Potluck	Decision Card
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Decision Card			Neighborhood Potluck
	↑↑ FREE SPACE! ↑↑		
		Neighborhood Potluck	Decision Card

	Neighborhood Potluck	Decision Card	Decision Card
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Place
Decision Cards
HERE

Decision Card	Decision Card		Neighborhood Potluck
	Neighborhood Potluck		Decision Card
		Decision Card	
		Neighborhood Potluck	Neighborhood Potluck
	Neighborhood Potluck		Decision Card