



To Pollute Or Not To Pollute?

TEACHER INSTRUCTIONS

Materials:

- Green, Yellow and Red pollution level cards
- 3 user packets (Score Card, envelope, 6 pollute sheets, round 1&2, 3&4, 5&6 sheets, fake money-\$6,000)
- Experimenter Record Sheet
- 1 piece of blank paper and a cup
- Name tags for Companies A, B and C
- 4 clipboards
- *If activity is to be repeated bring extra Score Cards*

Method:

Introduction:

1. Divide group into three companies (A, B, C).
2. Announce to the companies that they will play six rounds or “days” of this game, but that the circumstances might change as the “days” go on.

Day 1 and 2: perform twice

1. Each company should receive a Round 1&2 Sheet and Score Card. Together read over card instructions: “You are one of three companies based on a lake. Each company earns \$1000 every day. Unfortunately, your company creates pollutive waste. The cost of disposing your waste properly is \$100 per day. The cost of dumping your waste is \$0, but it pollutes the lake. There is no penalty for or law against polluting. Please decide how you would like to dispose of your waste.”
2. As the companies are discussing their decision hand out an envelope with \$1000 and 1 pollute sheet to each company.
3. Instruct groups to empty the envelopes and secretly finalize their decision by placing either a pollute sheet or \$100 back into the envelope.
4. Each group must turn in their envelopes.
5. Experimenter should check the envelopes and determine the pollution level:
 - a) **If all have not polluted**, Green Card: “No pollution! The town’s people are free to swim in the lake and there is plenty of excellent quality drinking water. The fisherman will have a good day because they can fish and sell their catch for money.
 - b) **If one company polluted**, Yellow Card: “The lake is polluted! Swimming is still allowed, but the lake water now has to be filtered for safe drinking. The fishermen are upset because all the fish in the lake have to be tested for pollutants and they must pay for this testing.
 - c) **If two or more companies polluted**, Red Card: “The lake is polluted! Swimming is not allowed and lake water must be filtered before it is okay to drink. A tax has been put on the entire town to cover the cost of water filtration

due to pollution. The Fishermen are not allowed to fish on the lake and many people are out of work.

6. Experimenter should record results on Experimenter Record Sheet and groups should record their decision on their Score Cards.

Day 3 and 4: perform twice

1. Hand out Round 3&4 Sheet and together read over instructions: “The government has now passed a law to try to stop companies from polluting. The cost of disposing your waste properly remains the same (\$100), but each day one company will be picked at random to be inspected to see if they polluted. If you are caught polluting, the penalty is \$1000, a full day’s profit, but there’s a chance you won’t get caught polluting, and there is no penalty for polluting if you’re not inspected. Please decide how you would like to dispose of your waste.”
2. Repeat steps 2&3 above.
3. To decide whose envelope to inspect write each companies name on a piece of paper and place in the empty cup. Randomly draw a name from the cup and ask that company for their envelope. If it turns out they’ve polluted, take \$1000 from them.
4. Collect all envelopes and announce pollution level based on all the envelopes (see step5).
5. Experimenter should record results on Experimenter Record Sheet and groups should record their decision on their Score Cards.

Day 5 and 6: perform twice

1. Hand out Round 5&6 Sheet and together read over instructions: “The government has passed a NEW law to try to stop companies from polluting. Now, all companies are responsible if any company decides to pollute. The cost of disposing your waste properly remains the same (\$100), but now if the lake is polluted, ALL companies have to pay \$500-a half day’s profit. No one will know which company polluted, but ALL companies will have to pay \$500 if ANY company pollutes. Please decide how you would like to dispose of your waste.”
2. Repeat steps 2&3 from Day 1&2.
3. Collect all envelopes and announce pollution level (using step 5).
4. Make all companies pay \$500 if pollution level is NOT GREEN.
5. Experimenter should record results on Experimenter Record Sheet and groups should record their decision on their Score Cards.

Aftermath:

After all rounds have been played, participants should discuss the results of the experiment. Some suggested focus questions are as follows:

What are some advantages and disadvantages to sharing resources like the town’s lake?

Were the decisions of your company effected by what other companies did in previous rounds?

In which rounds did the fewest companies pollute? What do you think prevented them from polluting?

If you were mayor of this town, what laws would you pass to prevent pollution of the lake?

This game was developed by The Center for Research on Environmental Decisions (CRED) at Columbia University. You can learn more about CRED at www.cred.columbia.edu.