FOR THE COMMON GOOD

People and the Planet
Lessons for a Sustainable Future

INTRODUCTION

Renewable resources, such as trees or fish, can be maintained if managed properly. But if not given an opportunity to replenish, these resources can be exhausted quickly, especially as the demand for the resources grows. Garrett Hardin's theory, Tragedy of the Commons, asserts that people tend to act in their own self-interest and not in the interest of the "common good." In managing renewable resources, it is important for people to use them cooperatively and to not sacrifice long-term gain for short-term profits. A similar concept holds true in social dilemmas – cooperation, rather than selfishness, brings more long-term benefits to society. It is valuable to understand the benefits of cooperation and sustainable resource management in order to preserve our limited resource base as the population continues to grow.

MATERIALS

- Poker chips
- Candy or stickers
- Music

PART 1: SOMETHING FOR EVERYONE PROCEDURE

1. Count out, but do not distribute, 10 chips for each student playing the game.

2. Seat students in a circle.

3. In the center of the circle, place a pile comprising one-fourth of all the chips. For example, if you have 10 students, you use 100 chips, and put 25 in the center.

CONCEPT

Sustaining our natural resource base requires conservation and the cooperative use of resources held in common.

OBJECTIVES

Students will be able to:

- Identify a strategy that would produce a sustainable use of resources in a simulation game.
- Draw parallels between the chips used in the game and renewable resources upon which people depend.
- Analyze how the actions of participants in resource simulation games are similar or different from the actions of people in real-world situations.

SUBJECTS

Science (Earth and environmental), social studies (civics, geography), math, family and consumer sciences

SKILLS

Finding cooperative strategies, critical thinking, identifying trends and patterns, communicating

METHOD

In two simulation games, students determine individual short-term consumption strategies that will maximize resources for the entire group.

4. Read the following rules twice to the students:

Rules

1. The chips belong to all of you.
2. Music will be played, and while it is playing, everybody may take chips out of the pool of chips in the center.
3. You may not put chips back into the pool once you have taken them out.
4. You may trade in 10 chips for a piece of candy (or sticker).
5. As soon as the music stops, I will double the number of chips left in the pool at that time, and then continue the game.
6. There will never, however, be more chips in the pool than there are at the start of the game; this is the maximum number of chips the pool can hold.
7. **MOST IMPORTANTLY**: You may not talk or communicate in any way to anyone during the game. This includes gestures, eye-contact, etc.

Notes to the teacher:

- DO NOT explain the significance of the chips before playing the game. The rules are the only instruction the players get.
- The players will most likely empty the pool at the start of the game. Point out that, as it's impossible to double zero, the game is over. Ask if they'd like to try again. Each student must return all of his/her chips to the pool.
- Continue to play the game for several rounds without giving the students time to communicate with one another in between.
- When doubling the chips in the pool, remember there can "never be more chips in the pool than at the start of the game." This is the pool's carrying capacity for chips.
- After several rounds, you may allow the students to talk while the music plays so they can discuss strategies.
- After five or six rounds, ask students how they feel about the way the game worked out. As a group, help students think of ways they could cooperate to allow more of them to get their 10 chips without depleting the pool of resources. Play again using the strategies developed by the students.

DISCUSSION QUESTIONS

1. What do the chips represent?

   Renewable resources, such as fish or trees. A resource is renewable if it can replace itself in the course of a human lifetime. Fossil fuels and minerals are examples of non-renewable resources, and therefore aren't applicable in this exercise. Water is also not a renewable resource; we have the same amount of water now as we ever had or will.

2. The chips, we said, belong to everyone. Can you think of examples of resources that belong to everyone?

   Answers may include: water, land and air resources, classroom materials.

3. Can we draw any parallels between the way the group treated the chips and the way individuals and society as a whole use or overuse renewable resources?

   Answers may include: ***Deforestation****: cutting trees down without planting replacements or at a rate that does not give new trees enough time to grow to maturity before harvesting.* ***Overfishing****: taking so many fish that not enough are left to reproduce and replenish the stocks for next year.* ***Overfarming****: depleting the soil of nutrients without giving it time to regenerate.*

4. What happened in the first round of the game? How did it make you feel about the other members of the group?

5. How did removing the 'no talking' rule change how the game was played? Did it allow you to strategize? What are some of the strategies you came up with?

6. Was there an ideal number of chips to take out of the pool? If so, what was it and why?

   Students build up their supply of chips the fastest if they take exactly half of the chips out of the pool during each round. That allows the maximum number to be added for the next round. If students take more than half, the number of chips to be doubled is lower, and there will be fewer available to take in the future. If they take fewer than half, it will take them much longer to build up the supply that they need for trade-in. Wildlife managers call this concept the Maximum Sustainable Yield and use it to figure out limits for hunting and fishing.

7. What would happen if we added people to the game? What do you think this would represent?

   It would be harder and harder to cooperate with everyone and develop a strategy for sharing resources. It would take longer for everyone to get a piece of candy. Adding people would represent global population growth and the challenges of sustainably managing resources as demand increases.

8. Do you have an experience where you have had to share a resource with others? If so, what was the commodity, and what were the results?

9. This game is a called 'For the Common Good.' Have you ever heard this phrase? What does it mean?

   Explain to students the meaning of the phrase, namely that the 'common good' refers to Aristotle's philosophical/ethical theory wherein moral choices are balanced by weighing the benefits of the group over benefits for the individual. You can also refer students to the 'Tragedy of the Commons,' Garret Hardin's theory that individuals will often overlook the consequences to others when drawing from a shared resource.

   It may also help students to look at and reflect upon the following videos:

   National Science Foundation: The Tragedy of the Commons, part 1: Chalk Talk
   National Science Foundation: The Tragedy of the Commons, part 2: Chalk Talk

PART 2: A SOCIAL DILEMMA

PROCEDURE

1. Distribute small pieces of paper to the class and read aloud the following rules:

   Rules
   1. You must write either a C or a D on your paper.
   2. If you write a C, I will give you nothing, but I will give everyone else in the class $1 (pretend money).
   3. If you write a D, I will give you $2, but I will give everyone else nothing.
   4. You aren't allowed to see what anyone else is writing.
   5. The result is that you'll get however many dollars you gave yourself, plus however many dollars everyone else gave you.

2. Give students a short time to make their decisions and write a C or D.

3. Then tell students to consider the following questions:

   a. How many dollars would you get if everyone in the class writes a C?
   Answer: The number of students in the class minus one.

   b. How many dollars would you get if everyone in the class writes a D?
   Answer: Each student will only get $2.

4. Give students time to reconsider and change their answers if they so choose. Then ask the students to reveal their final choices, whether they've changed, and why.

5. Ask the class what C and D might stand for and brainstorm a list. Record students' answers on the board. Remind them what choosing C or D did in terms of dollar amounts to them as individuals vs. the group.

DISCUSSION QUESTIONS

1. In this activity, C stands for cooperating and D for defecting. What do these terms mean? How would you feel if you cooperated and everyone else defected? How would you feel if you defected and everyone else cooperated?

2. In this game, when do all the participants get the most? The least?

   Participants get the most when everyone playing writes a C.

3. What are some examples of C-type (cooperative) behavior in the real world?

   Answers may include: contributing to public TV, not trying to evade the law, keeping promises, doing one's job wholeheartedly in the absence of supervision, not taking more than one's share of a public resource, not polluting the air.

4. Think of a real-life social dilemma in which too few people cooperate. How could people be encouraged to cooperate more?

ASSESSMENT

Students complete the following sentence:

When talking about resources, "for the common good" means _____.

FOLLOW-UP ACTIVITY

Have students research a renewable resource in their local community (or state) and determine if the resource is being managed sustainably.

Part 1 adapted with permission from an activity developed by Kurt and Ursula Frischknecht and Karen Zimbelman found in Thinking Globally and Acting Locally: Environmental Education Teaching Activities by Lori D. Mann and William B. Stapp, ERIC/SMEAC ©1982.

Part 2 adapted with permission from an activity developed by Jonathan Baron, Decision Science Consortium Inc., Reston, VA, 1988.