

Sustainability - Why is cooperation important?

Upper Primary/Secondary

Key Inquiry Questions

1. What is a collective action problem?
2. Why is it important to cooperate?
3. How do collective action problems relate to sustainability and your everyday life?

Learning Outcomes

1. Students will be able to understand what a collective action problem is after the lesson.
2. Students will learn about the importance of cooperation over being selfish after the lesson.
3. Students will be able to relate collective action problems to their everyday lives after the lesson.

Sustainability Curriculum Goals

Systems Thinking:

1. Sustainable living relies on the interdependence of viable, healthy social, economic, ecological, and political systems.

Worldviews and Mental Models:

1. To achieve sustainability, worldviews must recognize the interdependence between living and nonliving things on healthy ecosystems, value diversity in nature and in human perspective, and social justice.

Sustainable Futures:

1. A sustainable future across social, economic, and ecological systems is accomplished through informed action and decision making at the individual and community levels that place a value on fairness across both present and future generations.

Overview

This lesson will demonstrate how an individual acting in their own self-interest often leads to a less desirable outcome for everyone. This concept is referred to as a “Collective Action Problem.” This lesson emphasizes cooperation over competition, enabling the decision-makers in a “Prisoner’s Dilemma” to solve the dilemma in a way that equally benefits everyone involved in the situation. The lesson will begin by setting the class up for the game. Students will be divided into two teams and explained the rules. Next, the game will begin and students will start to understand the role of cooperation throughout a series of three rounds. Lastly, the lesson will conclude with a debrief of what the students learned and how collective action problems are related to sustainability.

Materials

SolarSPELL Resource:

1. “The Collective Action Problem” (Environment > Teaching Resources > Environment and Sustainability > The Collective Action Problem)

Other:

2. Two different colored note card-sized sheets of paper or any two opposing items (such as a pencil and a marker).

Suggested Procedure

Before the lesson begins, teachers should read the Prisoner’s Dilemma and Collective Action Problems short reading in order to familiarize themselves with the topic.

Before Lesson:

- Break the students up into two teams of equal size and have the students form two lines facing each other.
- Explain to the students that each person will have the chance to play against the person they are standing across from on the opposing team.
- Pick two players to demonstrate the activity:
 - Tell the players to stand back to back.
 - This is so the players are unable to see what their opponent is doing.
 - Each player will be handed both sheets of paper or whatever the opposing objects are.
 - I.e. a red sheet of paper and a green sheet of paper
 - Inform players that their team will be awarded points based on the card they show to the teacher.
 - Then state the following:
 - If you and your opponent both show a green card, you will both be awarded 3 points.
 - If you show a green card and your opponent shows a red card, you will get 1 point and your opponent will get 5 points.
 - If you show a red card and your opponent shows a green card, you will get 5 points and your opponent will get 1 point.
 - If you both show red, each of you will get 2 points.
 - Then explain the two simple rules to the students:
 - There will be no talking unless the teacher (you) says.
 - Both teams should try to score as many points as possible.
 - Note: do not answer any questions regarding the use of the word “both” teams.

During Lesson:

- Next start the game.
- Go to each player and have them show you their chosen card. As you go to each pair of players, mark down the color each player shows.
 - At first, there will probably be a mix of green and red cards. As the first round continues, students will likely pick red out of their own self-interest. In fact, some students might show signs up getting upset if their teammate chooses green over the red card.
- At the end of the round, tally up the score for each team and announce the score and average to the class.
 - Remind students that the goal is for both teams to get as many points as possible.
 - Give students a few minutes to strategize with their team.
- Start round 2.
 - The results of this round will likely be that all players choose the red card, making their overall average score lower than round 1.
- Inform the students that they are actually doing worse than in round one and, again, remind them that the goal is for both teams to get as many points as possible.
- Allow students from both teams to strategize together. After a few minutes, stop the allowance of talking and begin round 3.
 - Generally, in round 3, almost all players choose the green card. Now, their average is even higher than round 1 and the players recognize the importance of cooperation.

After Lesson:

- Debrief the lesson by asking students to write down their answers to the following questions:
 - 1. What did you learn in this game?
 - Possible answer: it is important to think about others and how we can all work together rather than being selfish.
 - 2. What similar problems do you see in your everyday life?
 - Possible answers: fishing, water pollution, and climate change.
 - Ex: individuals may want to use technologies and products that emit a lot of greenhouse gases, but society as a whole is better off without rapidly advancing climate change.
 - 3. How can you use the lessons you learned in your life?
 - Possible answer: I can work to cooperate better with others and give everyone the chance to share their opinion when working in teams.
 - 4. How do you think this relates to sustainability?
 - Possible answer: The environment is a very important aspect of sustainability. Individuals may want to consume natural resources, such as destroying the forest for agriculture. There are trade-offs to protecting vs. destroying the forest, but, in some cases, society may be better off protecting the forest and changing some of their agricultural strategies as



opposed to clearing it for agriculture. Collective action problems require us to work together to see the problem from all sides in order to make a decision that benefits the most people.

- Call on students to share with the class.
 - Most students will likely talk about how cooperation allows them to achieve their goals while working in their self-interest makes things worse in the end.
 - Explain to students that the game showcased a collective action problem.
 - A collective action problem is when individuals are better off cooperating, but fail to do so because of their own self-interests.