



Theme: Animals (Grades 9-12)

Post-Visit Activity #2 Happy Fishing

Overview:

The purpose of this simulation is to demonstrate how individuals using a common resource (the commons) for their own personal gain will inevitably result in the degradation of the commons, and a decrease in yield for both the group and the individual. In Nevada, people fish in Lake Mead, Lake Tahoe and in many rivers and streams throughout the state. If fishing is not monitored this could result in severe population declines, affecting the other organisms who depend on the fish for survival. Over-hunting is another way in which species of animals can decline. This activity will demonstrate the importance of population monitoring.

Objectives:

- Collect, organize, write, and interpret scientific data.
- Work in cooperative groups to complete the assigned tasks.
- Understand the importance of population monitoring and control.
- Examine species dependence on humans for their survival.
- Develop an understanding and gain knowledge of how much time organisms need to reproduce in an ecosystem.

Materials:

- 1 "fishing pole" (2 straws taped together end-to-end) per student
- 1 "lake" with 20 "striped bass or other species of fish from Nevada" (bowl of M&Ms) per group

Activity:

Each group will get a lake full of fish. Each group member will get a fishing pole, and the entire group will fish for several "seasons". Students try to catch as many fish as possible to ensure they have enough food to eat. Between fishing seasons the fish remaining in the lake will reproduce until they reach the carrying capacity of the lake.

1. To "fish," students must use the fishing pole to suck the fish out of the lake.
2. The "lake" has a carrying capacity of 20 fish, so there will never be more than 20 fish in the lake.

3. Fish one "season" at a time, which represents one generation of fish. Each student may catch as many fish in a "season" as he/she wants. They need at least one fish or they will starve.
4. After the first fishing season (60 seconds), stop fishing, and the fish will "reproduce." For every fish left in the bowl, add another, up to the carrying capacity of 20.
5. Record the number of fish caught during each season by each individual and by the group.
6. Repeat steps 3 through 5 for several "seasons."

Conclusion:

The following questions can be discussed as a class, in groups, or assigned individually as homework.

1. Did any groups fish out all the fish from their lake? Why did this happen?
2. Did your group decide to change fishing strategies during this activity? At what point, and from what strategy to what strategy?
3. Compare this activity to the relationship between human societies and the environment. Is what happened in your lake similar to any real world examples that you know of?
4. What are possible methods to solve the problem of human societies overusing natural resources?
5. The debate of over-fishing and over-hunting occurs around the world. Find an article on the internet where this has happened in the last year. In a paragraph, summarize both points of view—the point of view of the fishermen or hunters and that of the environmentalist. With whom do you agree?