

Oh Deer!

Adapted from Project WILD

Overview

This popular *WILD* activity leads students to understand the relationship of water, food and shelter in regulating the numbers of a deer population. A game is played where students are either deer or habitat (food, water, shelter). Survival results are graphed to demonstrate “carrying capacity” of an environment for Wyoming wildlife.

Objectives

Students will:

- discover that when a population increases beyond the carrying capacity of its habitat, the environment deteriorates and the population may decline sharply until a new equilibrium is reached.
- be able to describe that all populations have the potential for exponential growth, but extreme population increases are usually limited by available resources (space, food, water), physical factors (rainfall, temperature), and biological controls (competition, predation).
- develop an understanding that some fluctuations in wildlife populations are natural.

Goals and Concepts

A19; B1; C16,17,27,29,30

Grade Levels: K-6

Time Needed: 45 minutes

Subjects to Integrate: Science, Math, Social Studies, Physical Education

Topics: natural population cycles, survival needs of all species

Skills: kinesthetic concept development, graphing, psychomotor development

Materials

An area either inside or outdoors that is large enough for students to safely run.

Chalkboard or flip chart

Writing materials

Background

Many factors affect the ability of wildlife to survive and successfully reproduce. Disease, predator/prey relationships, weather conditions, accidents, environmental pollution, and habitat destruction are among these. The most fundamental of these needs are food, water, and habitat in a suitable arrangement. The arrangement of these needs for any organism is referred to as its habitat. Animal populations are constantly changing in response to changes in their habitat.

This activity is intended to be a simple but powerful way for students to grasp some basic concepts:

- How components in natural systems are interrelated
- Populations of organisms are continuously affected by elements of their environment
- Populations of animals do not stay at the same number year after year in their environment, but are instead dynamic (changing).

Procedure

1. Explain the components of habitat to the students: food, water, shelter and space. Have the students number off by fours. All of the ‘ones’ are deer. All of the ‘twos, threes and fours’ are habitat. Explain that the area we

are using in the activity is the "space" needed by the deer population. Explain that for each round the deer choose to look for food, water or shelter.

If it is looking for food it puts its hands on its stomach. If it is looking for water it puts its hands over its mouth. If it is looking for shelter it should put its hands over its head. Once a deer has chosen a sign it cannot change that sign until the next round, if it survives.

2. The other students are the habitat and use the same signs as the deer. They show food, water or shelter. Once they choose a sign they may not change it until the next round.
3. Start the game by having all players line up. All of the deer are on one side and the habitat components are on the other side. Students turn their backs to the other line. Tell them to choose a sign. Once they have chosen a sign tell them that on the count of three they are to turn around. The deer are to try and find a habitat component with the same sign and run to them. The habitat components stay in place. The deer are to hold their sign as they run. Any deer that finds its necessary component takes it back to the deer line. This represents a deer that has successfully met its survival needs and has reproduced as a result. A deer that fails to find the necessary component dies and joins the habitat. The first deer that gets to the component that it needs gets that component. Habitat components that are not chosen stay as part of the habitat for the next round. At the end of each round the teacher records the number of deer.
4. Do about 15 rounds of the game recording the number of deer at the end of each round. Chart the results on the board or flip chart, or have the students graph the data. Ask the students to interpret their graph and what happens to the deer population and why they think this happens. What do animals need to survive? Are the numbers in wildlife populations always the same or do they change? What factors cause a wildlife population to change for long periods of time or forever? How do some populations of wildlife species in Wyoming compare today as with other times? How might they compare today with populations in the future? What habitat components for wildlife are being changed by humans? What trade-offs are made when humans take a needed component from some wildlife population? What values in our society are represented by the choices we make? Do you believe that most people understand the needs of wildlife?

Extend the Activity

1. Choose two students to be predators. Have these students stand between the deer and the habitat. If they touch a deer it dies and goes back to the habitat line. If a predator is successful enough to get two deer they are allowed to pick another predator from the habitat line. If they fail to catch a deer they die and have to join the habitat line. Play the game again for 15 rounds and this time keep track of both the predator numbers and the deer numbers. At the end compare the numbers of both populations. Are they related and if so how?
2. Have a staff member of the Wyoming Game and Fish Department or a wildlife graduate student come to your class and discuss some of the game management problems in Wyoming such as the winter grazing for elk and the competition with domestic herds. Have a rancher visit the class and discuss the competition of wildlife with his/her domestic herds. How may ranchers and those who manage the land for wildlife populations compromise for the survival of both wildlife and domestic grazing herds?

Suggested Assessment

- Ask students what are the four essential components of habitat and what is meant by their "arrangement?"
- Ask students to explain a Wyoming situation in which a trade-off is made between wildlife needs and other human interests in the land. Have students draw a graph that illustrates the numbers of a typical 15 year population of deer.

Sources and Resources

<http://www.projectwild.org/>

Look at these other Project WILD activities:

Habitat Rummy

How Many Bears Can Live in This Forest?

Carrying Capacity
Which Niche?

<http://www.earthmatters4kids.org/main.html>
on-line curriculum and activities for kids