

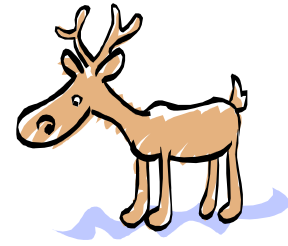


Oh Deer!

Grades: Adaptable to all grade levels

Duration: 45 minutes

Purpose: This is an activity that illustrates for students the concept of carrying capacity as they become deer or a component of its habitat. For older students, it is an opportunity to see how changes in animals carrying capacity causes changes in population. For younger students, focus should be on deer and the components of its habitat.



Objective: The student will be able to identify that food, water, shelter, and space are necessary components to survival. The student will be able to define factors that may limit survival and recognize the fluctuations in wildlife populations based the constant change of the ecological system.

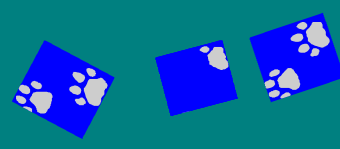
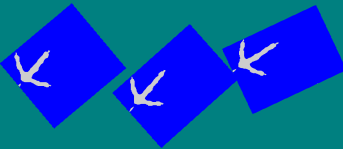
Nevada Department of Education State Standards:

Organisms and Their Environment (Life Science Unifying Concept C) A variety of ecosystems and communities exist on Earth. Ecosystems are dynamic interactions of organisms and their environment. Ecosystems have distinct characteristics and components that allow certain organisms to thrive. Change in one or more components can affect the entire ecosystem.

Materials:

Graph paper
Writing utensils.

Anticipatory Set: Begin the lesson by introducing the concept of carrying capacity and explaining to students that carrying capacity affects all living things on Earth. Carrying capacity is the number of animals of a given species that can be supported in a living area (meaning that it has enough food, water, space, and adequate shelter). Explain to students that different animals have different carry capacity within the same area. For example, at Water Canyon there are enough habitat requirements to support about 50 mule deer. Mule deer are the favorite prey of mountain lions, however, because of the mountain lion's need for space Water Canyon can only support one mountain lion, which is important because if there were more mountain lions then there would not be enough mule deer to support them. It is important to note that carrying capacity is in a constant state of change. What factors would cause it to change? Seasons cause carrying capacity to change because there is less food in winter. Other factors include: variations in rainfall, change in temperature patterns, natural disasters, change in plant growth, and human intervention. As a result, populations of animal species have a tendency to fluctuate. Tell students that they will have the opportunity to see this for themselves as they become deer and components of its habitat in today's activity.



Developing the Lesson: Go to a fairly open area and mark off two parallel lines ten to twenty yards apart. During the activity, when the deer wants food, it should put its hands over its stomach. When it wants water, it should put its hands on its mouth. When it wants shelter, it should put its hands yards apart. Have the students count off in fives. The ones will become the deer, which will stand behind one of the two parallel lines. The twos will become food, the threes will become water, the fours will become space, and the fives will become shelter. These “components” of the deer’s habitat will stand behind the second line.

During the activity, when the deer wants food, it should put its hands over its stomach. When it wants water, it should put its hands on its mouth. When it wants shelter, it should put its hands together over its head. When it wants space, it should stretch its arms out to the side. The components of the habitat will carry out the same actions to denote that they are that component.

The deer and the components should turn around with their backs to each other. The teacher then shouts 1, 2, ...3. They all turn towards the center. Each deer will reveal the component it is looking for. Each component will reveal which one they are.

The deer will run to get its component and take it back to the deer side of the line.

(Representing the deer meeting its needs and reproducing as a result.) Any deer that does not find its component dies and becomes part of the habitat, joining the students on the habitat side and choosing a component that it will become.

The teacher should keep track of how many deer are at the beginning and end of each round. After consecutive rounds, the students can graph the fluctuations in population. The class should discuss the fluctuations as a natural process. A discussion of excessive limiting factors, such as drought, fire, deforestation, loss of habitat, and over hunting, should be introduced. The game can then continue to include limiting factors. For example, if there is a drought no one on the habitat side could be water (the deer would be unaware).

Conclusion: After the activity, ask students how the population of deer changed as a result of changes in its habitat. Have students use their graphs to support their findings. What are the components necessary for deer to survive? Ask students what are some of the factors that limited the survival of the deer? Ask students how humans have altered the carrying capacity of deer and other animals. Have these changes helped or hurt the animals? What can we do to limit the amount of change we inflict on animals’ carrying capacity?