

## Chapter Five

# HOW MANY BEARS LIVE IN THIS FOREST?

## PREDATOR AND PREY

### SUPPLIES NEEDED

- ✓ Five colors of construction paper (3 sheets of each color)
- ✓ Black felt pen
- ✓ One envelope per person
- ✓ Pencils
- ✓ Blindfold

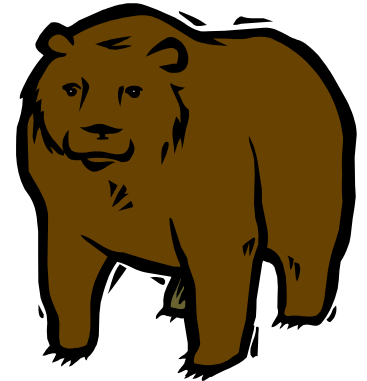
## ACTIVITY OVERVIEW

### ACTIVITY SUMMARY

Students learn about carrying capacity through a simulation game

### PREPARATION

- ✓ Cut out colored paper as indicated in "Methods"
- ✓ Mark out the area that will be used



### LOCATION

Outdoors or indoors in a large open area like a gym.

### TIME NEEDED

40 Minutes

### EDUCATION BENCHMARKS

Identify how some animals gather and store food, defend themselves, and find shelter.

## OBJECTIVES

To define carrying capacity and understand its importance

*This material is derived from the Oregon 4-H Discovery Learning Outdoors Leaders Guide, Grade 3, produced by OSU Extension 4-H Youth Development Department*



# BACKGROUND

Carrying capacity is the ability of a given area of habitat to supply food, water, shelter, and necessary space to a wildlife species. It is the largest population the area can support on a year-round basis, or during the most critical season. An area of bear habitat can

support only a specific number of bears, just as a one-gallon bucket can hold only one gallon of water. All habitats, for whatever species, vary seasonally and yearly in their carrying capacity. Habitats can therefore only support the numbers that can be carried at the lowest ebb of

the season or year. Those surplus animals, born during milder seasons, must die due to some "limiting factor" prior to, or during, the harsher season. This activity uses black bears as an example so that children can understand carrying capacity.

# METHODS

1. Cut the paper or poster board into 2"x2" or 2" x 3" pieces. Make one card of each color for each person. For example, for 30 children, make 30 cards of each color and mark them as follows:

- ◆ Orange—nuts (acorns, hazelnuts, walnuts, hickory nuts); mark 5 pieces N-20; mark 25 pieces N-10.
- ◆ Blue—berries (blackberries, elderberries, huckleberries); mark 5 pieces B-20, mark 25 pieces B-10.
- ◆ Yellow—insects (grubs, worms, larvae, ants, termites); mark 5 pieces I-12; mark 25 pieces I—6.
- ◆ Red—Meat (mice, fish, squirrels, beaver, muskrats, deer); mark 5 pieces M-8; mark 25 pieces M-4.

- ◆ Green—plants (leaves, grasses, herbs); mark 5 pieces P-20; mark 25 pieces P-10.

The color and letter show the type of food, and the numbers represent the amount of food in pounds. The following is an estimate of the amount of food eaten by one bear in ten days, based on a black bear study done in Arizona.

- ◆ Nuts—20 lbs.=25%
- ◆ Berries—20 lbs.=25%
- ◆ Insects—12 lbs.=15%
- ◆ Meat—8 lbs.=10%
- ◆ Plants—20 lbs.=25%
- ◆ 80 lbs.= 100% in ten days

Make the appropriate number of food cards for your size of group. There should be less than 80 pounds of food per person so that there is not actually enough food in the area for all the "bears" to survive.

2. Scatter the colored pieces of paper in a fairly large open area.
3. Have each person write his or her name on an envelope and put it on the ground (perhaps an-

chored with a rock) on the perimeter of the field. This represents the bear's "den" site.

4. Each student starts at his or her envelope. Assign one person to be a crippled male bear who was hurt getting away from a larger male bear. He must hunt by hopping on one leg. Assign another person to be a young female bear who investigated a porcupine too closely and was blinded by the quills. She must hunt blindfolded. Assign another child to be a mother bear with two fairly small cubs. She must gather twice as much food as the other bears.

5. Do not tell the group what the colors, initials, and numbers on the pieces of paper represent. Tell them only that the pieces of paper represent various kinds of bear food. Bears are omnivores and eat a wide variety of foods, so tell the children to gather squares of different colors to get the required variety. Everyone must walk into the "forest." Bears do not run down their food; they gather it.

6. The children should find and pick up colored squares one at a time, placing each square in their dens before picking up another one.



## METHODS

Pushing and shoving—any competitive activity—is acceptable as long as it is under control. Stealing food from the blind bear or the crippled bear is natural— but stealing from each other’s dens is not. Remember that if bears fight (which they seldom actually do), they can get injured and unable to gather sufficient food; then they starve.

7. When all the colored squares have been gathered, have everyone pick up their den envelopes and meet in the center of the field. Compare the types and amount of food gathered by each bear and discuss the implications.

