

# Urban Biodiversity

Name: \_\_\_\_\_ Period: \_\_\_\_\_

In this game you are responsible for the care of a community of bird and plant populations. The first time we play your role in the game is to watch your community and keep track of the number of each species as the game progresses. The second time we play you'll have a chance to use what you've learned about how a community responds to its environment and design your ideal community.

## Pre-Lab Questions:

1. What are factors that support biodiversity?
2. What are factors that reduce biodiversity?

## Background Vocabulary:

1. Species Richness:
2. Species Abundance:
3. Species Evenness
4. Shannon-Weaver Index:

### The Shannon Index (H')

$$H' = - \sum_{i=1}^S p_i \ln p_i$$

S = the total number of species

$p_i$  = the relative abundance of each species

**Data Table:** Insert here.

## Round #1 Initial Community:

1. You have been provided a card for your initial community (#species and #individuals of each species). Do you think your community will survive the different changes in the city? Why or Why not?
2. Examine the results from all of your classmates. Which communities do you think were the healthiest at the end of the game? How did you decide?

## Round #2 Create your own Community:

1. Determine the starting number for each species of bird and plant. Below describe your rationale for your community.
2. Examine the results from all of your classmates. Which communities do you think were the healthiest at the end of the game? How did you decide?

## Post Lab:

1. How did the initial species richness, species evenness, and abundance of individuals for the communities affect the results of the game? What were characteristics of the "healthiest" communities?
2. During round #2 did your changes improve the Shannon Diversity Index? Explain how you know using the data.
3. Look back at the events you recorded in your table. Which of the events were caused by the activities of people? Did you think those events were positive or negative, and why?
4. Explain why a more biodiverse community has a greater resilience.

