

Name \_\_\_\_\_

## MEASURING SPECIES DIVERSITY

**Activity:** In this activity you will inventory species diversity in two different areas on the property of Midpark High School: lawn and woods. Below hypothesize which site will have more species diversity.

**HYPOTHESIS:** Ranking of outdoor sites. Circle the location that will have the *highest* species diversity.

**LAWN**

**WOODS**

Why did you choose this location?

### PROCEDURE

#### DAY ONE

A. You will be in 7 teams of 4. Each team will be assigned a number. Members of the teams will “count off” and be assigned roles according to their number. Record the names of your team members on the blank provided next to their role.

**TEAM NUMBER** \_\_\_\_\_

- \_\_\_\_\_ #1) **Taskmaster** – keeps the team on task and directs the team’s discussion.
- \_\_\_\_\_ #2) **Recorder** – writes down the important information and transfers team data to the class.
- \_\_\_\_\_ #3) **Field Surveyor** – see directions below
- \_\_\_\_\_ #4) **Field Surveyor** – see directions below

B. Each team will select and mark the boundaries of a square that measures three meters on a side in the woods area. Field Surveyors will count the numbers of different species and the numbers of organisms in each species in the plot. Each species should be named using common or descriptive terms. You should group the species with those that are similar according to the categories: Plants, Animals, and Others.

## SITE INVENTORY – DAY ONE

Date \_\_\_\_\_ Time observed: From \_\_\_\_\_ To \_\_\_\_\_

**Location – WOODS** – Draw a map of your site on the back of this page. Use the top ½ of the page.

### SITE DESCRIPTION

Dominant plant form (trees, shrubs, grasses, etc.); the plant that you find more than any other in this area:

Major ground cover (shrubs, grass, soil, bare rock); the plant or other material that covers most of the ground:

Significant physical characteristics (temperature, light, water sources, moisture, human structures); the non-living characteristics of the area:

### SPECIES

Plants (trees, shrubs, grasses, flowers, ferns, moss, mushrooms):

Animals or indirect evidence of animals (mammals, birds, reptiles, amphibians, insects, tracks, burrows, nests, scat, signs of eating or food sources, hair, footprints):

Other organisms (those you aren't sure of). Be sure to describe these below and draw a picture on the back of this page

### DATA TABLE 1

<u>SITE</u>	Number of plant species =	Number of animal species =	Number of other species =	Total number of species =
WOODS				

## DAY TWO

- A. You will stay in the same team, but with different roles. Each team member will rotate two positions from the previous day's job description. (e.g., Taskmaster and Recorder become Field Surveyors). Record the names of your team members on the blank provided next to the role.

TEAM NUMBER \_\_\_\_\_

- \_\_\_\_\_ #1) **Taskmaster** – keeps the team on task and directs the team's discussion.
- \_\_\_\_\_ #2) **Recorder** – writes down the important information and transfers team data to the class.
- \_\_\_\_\_ #3) **Field Surveyor** – see directions below
- \_\_\_\_\_ #4) **Field Surveyor** – see directions below

- B. Your team will select and mark the boundaries of a square that measures three meters on a side in the lawn area. Field Surveyors will count the numbers of different species and the numbers of organisms in each species in the plot. Each species should be named using common or descriptive terms. You should group the species with those that are similar according to the categories: Plants, Animals, and Others.

## SITE INVENTORY – DAY TWO

Date \_\_\_\_\_ Time observed: From \_\_\_\_\_ To \_\_\_\_\_

**Location – LAWN** – Draw a map of your site on the back of this page. Use the top ½ of the page.

### SITE DESCRIPTION

Dominant plant form (trees, shrubs, grasses, etc.); the plant that you find more than any other in this area:

Major ground cover (shrubs, grass, soil, bare rock); the plant or other material that covers most of the ground:

Significant physical characteristics (temperature, light, water sources, moisture, human structures); the non-living characteristics of the area:

## SPECIES

Plants (trees, shrubs, grasses, flowers, ferns, moss, mushrooms):

Animals or indirect evidence of animals (mammals, birds, reptiles, amphibians, insects, tracks, burrows, nests, scat, signs of eating or food sources, hair, footprints):

Other organisms (those you aren't sure of). Be sure to describe these below and draw a picture on the back of this page

## DATA TABLE 2

<u>SITE</u>	Number of plant species =	Number of animal species =	Number of other species =	Total number of species =
LAWN				

A. You should report your team's data on the table provided on the overhead. You also need to complete your own data table.

B. **Homework:** Make two graphs. Graph the data from Day 1 and Day 2. The X-axis will include a list of all species found according to group (Plants, Animals, Others). The Y-axis will include the numbers of each species. You may choose to construct a line or bar graph. Both graphs will be displayed on the wall/blackboard during the next class.

## DAY THREE

- A. Tape your graph to the wall/blackboard.
- B. You will continue in the same team. Your team need to complete the following Study Questions

### STUDY QUESTIONS

1. Review the graphs posted on the wall/blackboard. Which of the areas appears to have the highest number of different species, or the greatest **species diversity**?
2. Does the class data support your hypothesis about the species diversity of the two sites? Explain.
3. Do you think scientists agree with each other when they classify groups of organisms? Why?
4. What was the most difficult aspect of this inquiry for your team? Why was it so difficult?
5. Scientists worldwide have recorded about 1.5 million species of living things. It is estimated that there are 10 million or more different species. If you were given the task of classifying as many species as you could, how would you begin? Why?
6. Imagine that we sample the species on Kelly's Island. How do you think the **size** or the **ecosystem diversity** of an area affects its species diversity?

**EXTENSION:** Why did you find more species of \_\_\_\_\_ in habitat \_\_\_\_\_?