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Module 01: Introduction to Urban Ecology

Urban EcoLab

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Student Handout - Microhabitat Investigation

Center for Urban Resilience

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Name: _____ Date: _____ Class/Period: _____

Microhabitat Investigation

For this lab, you and your group members will each take on a specific role. Some potential roles are:

- a. **Bug Collector:** collecting and cataloging insects and any other critters found within the hula hoop
- b. **Abiotic Data Collector:** collecting abiotic data: temperature, light, and relative humidity within the hula hoop.
- c. **Vegetation Inspector:** collecting and cataloging each of the different plants at the site. Being able to name and ID the plants is not as important as being able to tell that plants are different types. Also describing the vegetation structure and height.
- d. **Soil Examiner:** examining the soil in the site

Some roles may have more than one group member, and some group members may need to fill more than one role.

The instructions for each role are below.

Bug Collector:

It is the role of the bug collectors to catalog what different species are found in the microhabitat, using the following methods.

1. To capture flying insects on branches or the ground, use the collection jar to put over the insect while you identify it.
2. Butterfly nets, if they are available, can be swept through the vegetation in your microhabitat.
3. A sheet or towel may be spread around the base of a bush. Shaking the bush will cause the insects to fall to the ground to be identified on the sheet.

USE YOUR PHONE CAMERAS TO TAKE PICTURES OF THE BUGS then later you will do an internet search to identify each bug if you are still unable to identify a bug, just describe it in the data sheet.

It is important to realize that it is not necessary to count how many of each bug there is – just record which bugs are present. So, if you see 12 lady bugs, just record “lady bug” in the data collection sheet.

Abiotic Data Collector:

It is the role of the abiotic data collector to measure and record the air temperature and light characteristics within the microhabitat.

1. Record the temperature of the air at waist height using the thermometer.
2. Record the light conditions at your site – is it in full sun, shady, or partly shaded?

Vegetation Inspector:

It is the role of the vegetation inspector to record characteristics of the vegetation present at the site.

1. First, use the measuring tape to record the height of the tallest vegetation present and record this in the data sheet. Be sure to record the units you are using.
2. Record the number of layers of vegetation present. For example, if there is a shrub growing over grasses there are two different layers.
3. Next determine how many different species of plants are present. It is not important to identify each different species, but count how many different species there are.

Soil Examiner

It is the job of the soil examiner to record the characteristics of the soil.

1. Record the temperature of the soil.
2. Determine the moisture of the soil – is it wet, dry, etc.?
3. Determine the soil depth before the rocky layer. To do this, dig a very small hole into the soil until you reach a rocky layer. This might not be appropriate to do in areas where there is grass.
4. Using the measuring tape, measure the distance to the nearest road or parking lot. If it is farther than the length of the measuring tape, just record on the sheet “greater than ____” where you have inserted the full length of the tape.

The data from all of the group members should be compiled onto a single sheet for the group.

RESULTS

In the space below, list or describe the different species you find in your microhabitat.

Microhabitat Name or Color: _____

Species found (name or describe them):

Give some examples of how the species might be interacting in the following relationships:

Symbiosis:

Competition:

Predator/Prey

Follow the steps in your lab instructions to measure and record the conditions below.

Light Conditions:	
Height of vegetation:	
Number of layers of vegetation:	
Number of different plant species:	
Air temperature:	
Soil temperature:	
Soil moisture:	
Soil depth before rocky layer:	
Distance from the edge of the nearest road:	
Comments:	

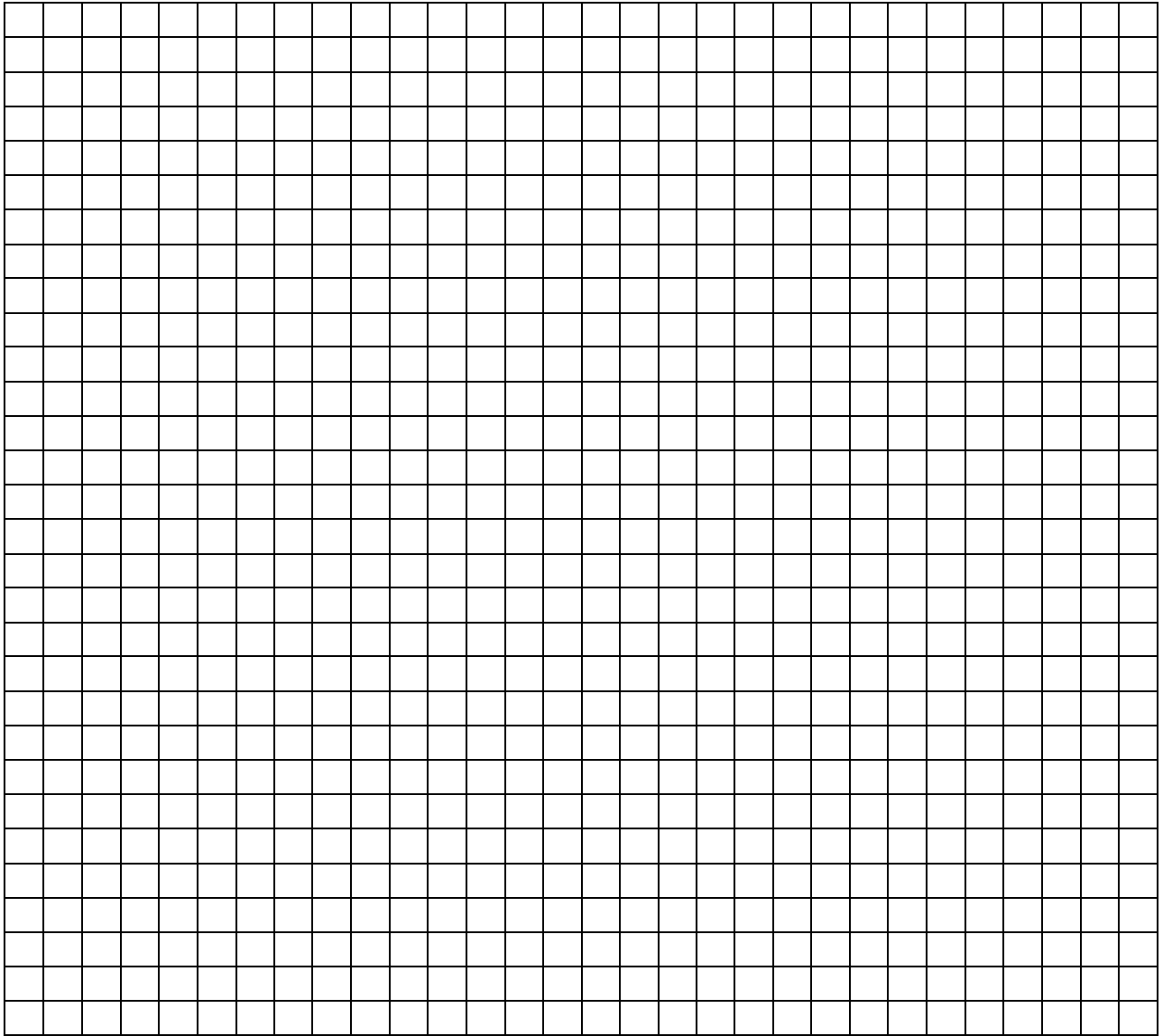
Name: _____ Date: _____ Class/Period: _____

Analysis

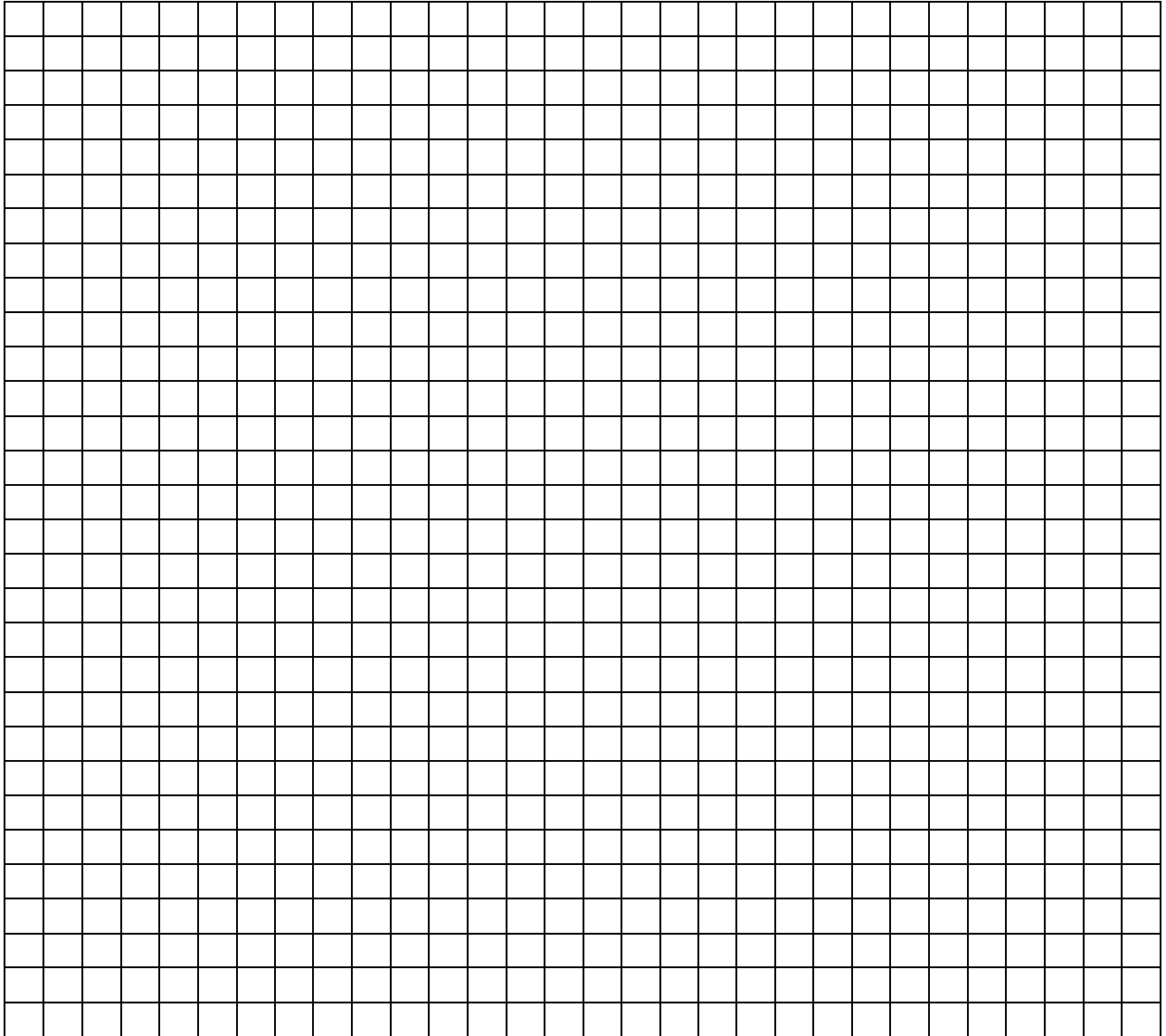
Directions: Answer the following questions, supporting your answers with data from the class data set, when appropriate.

1. What is a microhabitat? What is a microclimate?
2. What relationship can you find between the abiotic characteristics of the different sites and the species found there? Support your answer with data from the class data set.
3. Which microhabitat contains the most unique species? Why might that be the case? What would happen to those species if that microhabitat were covered with a parking lot?
4. What factors are most important in determining whether or not an organism will be found in a microhabitat?
5. How does our study of the school site relate to our city as a whole?

Directions: Create two graphs from the class data.



What conclusions can you draw from this graph?



What conclusions can you draw from this graph?