

Appendix 2

Count Those Critters - Lawn vs Garden- Insect Diversity (Grades 4-8)

By Janet Ekstrum

This activity may require help from a parent or teacher. Visually noting bees, rather than attempting to capture bees should be the plan if anyone in the group has a known bee allergy or are not certain if they are allergic. Number of students: 10-20.

Core concepts to teach prior to playing this game 1) general concepts of term "habitat", diversity, foraging, 2) the difference in physical appearance of flies and bees, 3) how to tally numbers.

Concepts: students will be able to see the difference in insect life present between two sites, one with higher plant species diversity than the other.

Materials:

2 mesh bug nets

2 large bug boxes or 2 clear plastic containers with holes punctured in the lid for ventilation

5-10 magnifying glasses

Measuring tape

Four 3 ft x 3 ft squares (these can be made out of any material you desire such as wooden lath, they are only to mark an area)

Paper towels

A timing device such as a sport watch or use cell phone stopwatch function.

Thermometer or check local weather conditions on cell phone

Field Tally Forms, Station 1 and Station 2

Set Up:

Conducting this activity between the hours of 10am and 4 pm along with days warmer than 65 degrees with sunny conditions will yield higher numbers of insects.

Pick a location within a mowed lawn. Measure out a 3 ft x 3 ft square and place markers on the ground. Similarly pick a location within the garden and measure out 3 ft x 3 ft squares by placing markers on the ground.

If an un-mowed section of lawn is available, an additional study site could be added to this activity to provide a contrast between mowed lawn and un-mowed lawn. Mowed lawns in general will have less vegetative diversity than sections of

lawn that are not mowed or not mowed on a regular basis. Less vegetative diversity results in less insects being present.

Additionally, the activity could be expanded to be conducted over more than one day or one time of day to compare results. For example, sampling areas could be netted once late-morning and once again at an afternoon to increase the diversity of insects located. Another option is to net and compare results between a sunny and cloudy day or a warm vs cooler day.

Game Instructions:

This activity should not be conducted by anyone with an allergy to bees or those who do not know whether they are allergic to bees. As an alternative bees can be tallied without being netted.

First fill out the Field Form which records the stations and what plants are growing there. Label each container, one for each of the netting stations.

Net the area by carefully moving the net back and forth over the vegetation. Give each student an opportunity to net.

Net for a total of at least ten minutes over each plot placing the captured insects into the appropriate container (i.e. lawn, garden)

Once an insect is netted, immediately place the insect(s) into the container then continue timing once netting resumes.

After ten minutes record the number of each type of insect on the tally sheet. It may be difficult to count all the insects inside the container. If that is the case, carefully dump the contents out onto paper towels for easier viewing and recording. Log the number of insects by their category.

Repeat the process for both stations and compare the results.

Discussion:

- 1) Which area had the highest number of insects, mowed lawn or garden plots?
- 2) Why were there more insects?
- 3) What type of insects were the same between the mowed lawn and garden plots?
- 4) What type of insects were different between the mowed lawn and garden plots?

Field Form - Lawn vs Garden- Insect Diversity



Student Name(s) OR Group Name:

Date and Time: _____

Weather Conditions: _____

Write a description of each netting station listing plants present. Identify the plants as best as you can. If specific plant names aren't known, use descriptions such as wildflowers, grass, perennial or annual flowers and plants.

Description of Netting Station 1: _____

Name Station 1: _____







Description of Netting Station 2: _____

Name Station 2: _____







Directions:

Net each site for at least 10 minutes, collecting and storing insects collected as you go. Stop the timer while transferring the insects into storage containers. Once netting is completed, record the number of each type of insect on the sheet below. It may be difficult to count all the insects inside the container. If that is the case, carefully dump the contents out onto paper towels for easier viewing and recording.





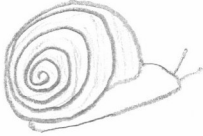
Lawn vs Garden, Tally Form, Station 1- Station Name: _____

Insect Type	Number Collected
 <p>Beetle/lady bug</p>	
 <p>Bee/bumblebee</p>	
<p>Sweat bee</p>	
 <p>Hoverfly/fly</p>	
 <p>Grasshopper</p>	
 <p>Butterfly/moth</p>	
<p>Spider</p>	
 <p>Snail</p>	
<p>Other:</p>	
<p>Other:</p>	
<p>Total Number of Insects:</p>	







Lawn vs Garden, Tally Form, Station 2- Station Name: _____

Insect Type	Number Collected
 <p>Beetle/lady bug</p>	
 <p>Bee/bumblebee</p>	
<p>Sweat bee</p>	
 <p>Hoverfly/fly</p>	
 <p>Grasshopper</p>	
 <p>Butterfly/moth</p>	
<p>Spider</p>	
 <p>Snail</p>	
<p>Other:</p>	
<p>Other:</p>	
<p>Total Number of Insects:</p>	

Lawn vs Garden, Tally Form, Station ____ - Station Name: _____

Insect Type	Number Collected
Beetle/lady bug 	
Bee/bumblebee Sweat bee	
 Hoverfly/fly	
 Grasshopper	
 Butterfly/moth	
Spider	
 Snail	
Other:	
Other:	
Total Number of Insects:	

Lawn vs Garden, Tally Form, Station _____ - Station Name: _____

Insect Type	Number Collected
Beetle/lady bug 	
Bee/bumblebee 	
Sweat bee	
Hoverfly/fly 	
Grasshopper 	
Butterfly/moth 	
Spider	
Snail 	
Other:	
Other:	
Total Number of Insects:	

