Bug Biodiversity: Sampling Ground Invertebrates
*By C. Kohn (based on a similar lab by the Great Lakes Bioenergy Research Center)*

Name: Hour Date:

Date Assignment is due:  Why late? Score: + ✓ -
 Day of Week Date If your project was late, describe why

**Purpose:** To measure differences in biodiversity in different “habitats”. *Safety warning: Bee sting hazard.* Anyone who is allergic to stings should take appropriate precautions. Students will not handle live animals, but fieldwork exposes them to sting potential. (If you have an epi-pens, remind your instructor)

**Materials**

• Spade, post-hole digger, or small shovel (one per group)

• Small plastic cups for pitfall traps (dairy containers work too)

• One gallon soapy water (1 tbsp unscented dishwashing soap/gallon)

• Board to cover each trap (optional)

• Strainer (one per group)

• One aluminum tray per group

• Marker flags.

**General notes on procedure:** Pitfall traps can be left in the field for two days to two weeks. For short sampling periods, soapy water is an adequate capture solution. If rain is expected, the traps can be covered with a board – a square piece of wood, plastic, or metal that is propped up with rocks or woodchips over the cup so that they allow insects to pass underneath but do not allow rain to fall in.

1. Choose a four sites near the school building that you think will have a HIGH level of bug biodiversity. List them below:
2. Circle the site from your four above that you think will have the highest biodiversity.
3. Check with your instructor that this is site is ok to use. *Instructor initials*:
4. Choose a four sites near the school building that you think will have a LOW level of bug biodiversity. List them below:
5. Circle the site from your four above that you think will have the highest biodiversity.
6. Check with your instructor that this is site is ok to use. *Instructor initials*:
7. Once you have received approval for both of your sites, acquire the following materials from your instructor:

- A small garden spade or shovel - The soapy water solution - Two plastic cups
8. Once everyone has their materials, move to the locations you chose on the previous page. Dig a hole the same size as your cup so that the lip of the cup is even with the top of the soil (or just slightly below it). Fill your cup halfway with soapy water.

	1. Repeat this step for your second site.
	2. When finished. return the spade and any remaining water to your instructor.
9. Return to your site after a couple days. Remove the cups and fill in your hole.
10. Take your cups to back to your classroom (or the location specific by your instructor). Strain the water out of the cups and dump the bugs into your trays.
11. Record your data in the spaces below:

SAMPLE ONE – Location sampled:

Number of individual bugs collected: Number of different species collected:

Biodiversity Score: (# species ÷ # individuals)

SAMPLE TWO – Location sampled:

Number of individual bugs collected: Number of different species collected:

Biodiversity Score: (# species ÷ # individuals)
12. Which sample did you think expect to have the higher biodiversity score? Why?
13. Was your hypothesis supported by your data?
14. List three things that you think made your sample with the higher score have more bugs: