Name: _____

Lab 10: Soils

Due during your pre-presentation meeting with your instructor. Pages must be stapled together.

1. Describe the environment from which you took your soil sample. Include all of the information from your notes. Also include the soil moisture reading from your site.

2. How did soil moisture relate to the soil habitat, vegetation, and land use (natural desert vs landscaped)?

3. Looking at the soil texture triangle, which soil type *in general* would you expect to have the greatest water retention ability? Which would have the greatest water percolation rate?

4. Based on the textures of the soil samples we collected, which campus habitat has the best ability to retain water? Which is most likely to drain quickly?

5. What is the soil texture of your sample? Compare this to the soil texture triangle and determine which particle size is probably most common in your sample.

6. Comparing the sites we sampled, is the differences in soil texture consistent with their soil moisture levels? If not, why do you think this is?

7. What was the pH of your soil sample? How will this influence the plants and other organisms living in the soil (either positively or negatively)?

8. Nitrogen pollution in the atmosphere causes excess N deposition to soils, usually in the form of HNO_3 (nitric acid) formed in the atmosphere. What do you think will happen when HNO_3 falls on the soil? Consider the effects of both nutrient availability and pH.

9. How does soil fertility (nutrient levels, especially Nitrogen) vary with soil habitat and land use on campus?

10. Leguminous plants, including acacias, palo verdes, and mesquites, are common in desert environment in part due to their ability to create symbiotic associations with N-fixing bacteria. How might soils beneath these plants differ from the surrounding soil, and why?

11. One way of increasing soil fertility is to add commercial fertilizers, which provide inorganic forms of nitrogen, phosphate, and other nutrients. What are some other, longer-lasting ways that you could suggest to increase soil fertility?

12. Compare the mesofauna community of the different types of soil. How do they differ in abundance and diversity? What can we guess about the nutrient status of the soils, based on the biota living in them?

13. Compare litter to soil. Which has a more abundant or diverse community? Why do you think this is so?