Study Guide – Soil Test

Field Biology

Please use this study guide to help you prepare for the soil unit test. Make sure that you are not only familiar with all the terms and concepts, but that you have a very clear understanding of how all of these ideas interrelate. You should be able to answer "what if" questions that, for example, 1) change the rules of ecology, 2) rely on different starting conditions than expected, or 3) have unexpected or arbitrary limitations.

1. Why are soil organisms important to the ecological health of plants growing in the soil?

2. What is the importance of the nutrient cycle? What role do soil organisms play in the nutrient cycle?

3. Explain how soil organisms can contribute to the decomposition of organic material at the surface of the soil.

4. Why is it that plants can use nutrients in ion forms (such as nitrates - NO_3^-, or calcium – Ca2+) but not organic matter or organic material?

5. A chunk of soil is removed from the back seat of Mr. Bregar's car and placed in a glass beaker. The mass of the soil and the beaker together is 425 grams. The soil is dried for two days in a drying oven; after it has dried, the mass of the soil and the beaker together is 388 grams. The mass of the beaker alone is 78 grams. What is the water content of this soil?

6. What is "soil texture"? How can you determine soil texture by making measurements and using a soil texture triangle? What information does soil texture tell us that might be useful to know?

7. What is the overall charge of the different sizes of soil particles? How does that influence the ability of different types of soil to retain nutrients?