

Complete prelab and Experiment 2 only

Environmental Succession

Pre-Lab Questions

1. How do ecosystems change over time? What causes those changes to occur? Include a specific example in your answer.
2. Identify three critical factors (abiotic or biotic) required for primary succession to occur.
3. Give two reasons why ecological succession progresses from populations with low diversity to populations with high diversity.
4. Highly diverse ecosystems are often regarded as more “healthy.” Explain why.
5. How does ecological succession demonstrate the evolutionary process of “survival of the fittest”?

Experiment 1: Winogradsky Column

Data Tables

Table 1: Winogradsky Column Results

Week #	Observations (colors, layers, etc.)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Post-Lab Questions

1. State a detailed conclusion based on your observation of the Winogradsky column. What types of species do you think you observed? Do your results support the hypothesis? Be specific and detailed in your answer.
2. Which part of the column is aerobic? Which part is anaerobic? How does oxygen affect the type of bacteria found in the column?
3. How many kingdoms do you believe are represented in the ecosystem in your bottle? Explain

4. What methods could you use to determine the types of microorganisms found in your column?
5. Where does carbon come from in a Winogradsky column?
6. Why is carbon important?
7. What purpose does calcium sulfate serve in the Winogradsky column?
8. How is photosynthesis different between cyanobacteria (growing at the top of the column) and green and purple sulfur bacteria (growing near the bottom $\frac{1}{3}$ of the column)?

Experiment 2: Succession Observations in the Field

Data Tables

Insert your picture or drawing here:

Post Lab Questions

1. What type of ecosystem was originally found in this location? What type of ecosystem is still found in the surrounding area?
2. What type of disturbance happened? How large is the disturbed area? Approximately how long ago do you believe this disturbance happened?
3. What species do you observe in the location? Try naming as many as you can, use a field guide or the internet to help with identification.
4. What is the definition of pioneer species? Did you observe any pioneer species?
5. Would you classify this as primary or secondary succession? Explain.

6. How far along is succession in this area? If newly disturbed is 0 and the original ecosystem is 100, what number would you give the location today? Do you believe it is likely that this area will recover to the original ecosystem? Why or why not?