



**Prelab Questions**—Write out and answer the following questions

1. Use the data table below and calculate the Shannon Diversity Index of a hypothetical tidepool.

Species	$i$	$n_i$	$p_i$	$\ln(p_i)$	$p_i (\ln(p_i))$
Sea Anemone ( <i>Anthopleura sp.</i> )	1	22			
Bat star ( <i>Patiria sp.</i> )	2	13			
Lobster ( <i>Panulirus sp.</i> )	3	7			
Sea hare ( <i>Aplysia sp.</i> )	4	16			
<b>TOTAL →</b>					

2. Identify which parking lot you expect to be the most diverse, and defend your choice.

3. Describe the physical location of the parking lot you are sampling

**Data Analysis**

- Determine the value for the Shannon Diversity Index for the data collected by your group. Show all of your work (each person needs a calculation sheet which you will be handing in with your Post Lab questions).
- Tabulate the values calculated by **your group** and the **other groups** in class for the Shannon Diversity Index.
- How consistent is the Shannon value for each group for the student and staff parking lots?

**Postlab Questions**—Write out and answer the following questions

- Identify the parking lot that was the most diverse. **Based on your observations during the lab**, explain why your prediction in question #2 of the prelab was supported or not supported.
- List the single most abundant species in each set of data, and write a plausible explanation to explain why these are the most abundant species.
- Determine the maximum and minimum values for the Shannon Diversity Index for the parking lots sampled.
- If you conducted this lab in a shopping mall parking lot, predict whether the Shannon Diversity Index would be high or low, and how it would compare to the school parking lots.
- If you conducted this lab at a new car dealership, predict whether the Shannon Diversity Index would be high or low, and how it would compare to the school parking lots.
- If you conducted this lab in another part of San Diego, say El Cajon, how similar or different do you think the results may have been? Why?
- If you conducted this experiment in a different country, do you think the results would be similar or different? Why?
- The importance of biodiversity has been correlated to ecosystem resilience and stability. According to your results, which parking lot demonstrates the higher degree of ecological stability?
- List and elaborate on any sources of error that may have affected you lab results.
- List a few other applications for which the Shannon Diversity value would be beneficial for someone to know.