



**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**

1. 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).
2. Tabulate the values calculated by **your group** and the **other groups** in class for the Shannon Diversity Index.
3. 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

1. 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.
2. 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.
3. Determine the maximum and minimum values for the Shannon Diversity Index for the parking lots sampled.
4. 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.
5. 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.
6. 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?
7. If you conducted this experiment in a different country, do you think the results would be similar or different? Why?
8. 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?
9. List and elaborate on any sources of error that may have affected you lab results.
10. List a few other applications for which the Shannon Diversity value would be beneficial for someone to know.