

Experiment

Overview

The experiment is an opportunity for your students to apply the information that they have learned about animal habitat, richness, and abundance. They will be given the opportunity to alter part of the habitat to see how this affects the richness and abundance of the animals seen.

Activity

Activity 13: Analyzing Experimental Data

After the final data collection is completed, students will need to analyze their data to see what changes have occurred. These changes could have occurred over time or differences between set-ups. Students will plot their data on the appropriate bar graph and draw conclusions from this plot.

Teacher and Student Assignments

Activity	Teacher	Student
13	<ul style="list-style-type: none">• Make sure that the teams have the appropriate data.• Aid students in the graphing and analysis of the data.	<ul style="list-style-type: none">• Graph the data that you have collected and try to answer your experimental question.

Time Estimates and Materials List

Time Estimates	Data analysis should take approximately three class periods.
Materials List	<ul style="list-style-type: none">• None

Learning Goals and Exploring Questions

Learning Goals	<p>Content Learning Goals:</p> <ul style="list-style-type: none">• Explain how changes in the environment influence the richness and abundance of organisms. <p>Inquiry Learning Goals:</p> <ul style="list-style-type: none">• Learner sharpens or clarifies question provided by teacher, materials, or other source.• Learner directed to collect certain data.• Learner guided in process of formulating explanations from evidence. <p>Technology Learning Goals:</p> <ul style="list-style-type: none">• Students will use a PDA to collect experimental data, which will then be transformed into charts and graphs.
Exploring Questions	<ul style="list-style-type: none">• By changing the environment, how has this changed the animal populations in the area?

Activity 13: Analyzing Experimental Data

To the teacher:

After students have completed collecting their data, it is time to plot the data and draw some conclusions. If students have used CyberTracker to log their data, it will be necessary to make sure they receive printouts of the summary tables for each time that they collected data. If the students collected data by hand, remind them to look at all of the data that they have collected at the different time points.

For students who used Cybertracker, go over with them whether they are focusing on Number of Animals (Abundance) or Number of Kinds of Animals (Richness) data, and where to find these on the summary tables.

If students counted/identified their animals on paper (instead of in CyberTracker), it will be necessary to guide them with the math for calculating the abundance and richness values. Abundance can be calculated by adding up all animal sightings at that time point or in that experimental setting. Richness can be calculated by adding up the number of kinds of animals seen at that time point or in that experiment setting. From these values, guide the students in plotting their data on the graphs provided.

In both cases, aid the students in making bar graphs of their team's data. If students collected data over time, have them use the first bar graph. If students collected data on two different experimental set-ups, direct them towards the second bar graph. Students should then be able to draw some conclusions from their graph and determine if the data answered their experimental question.

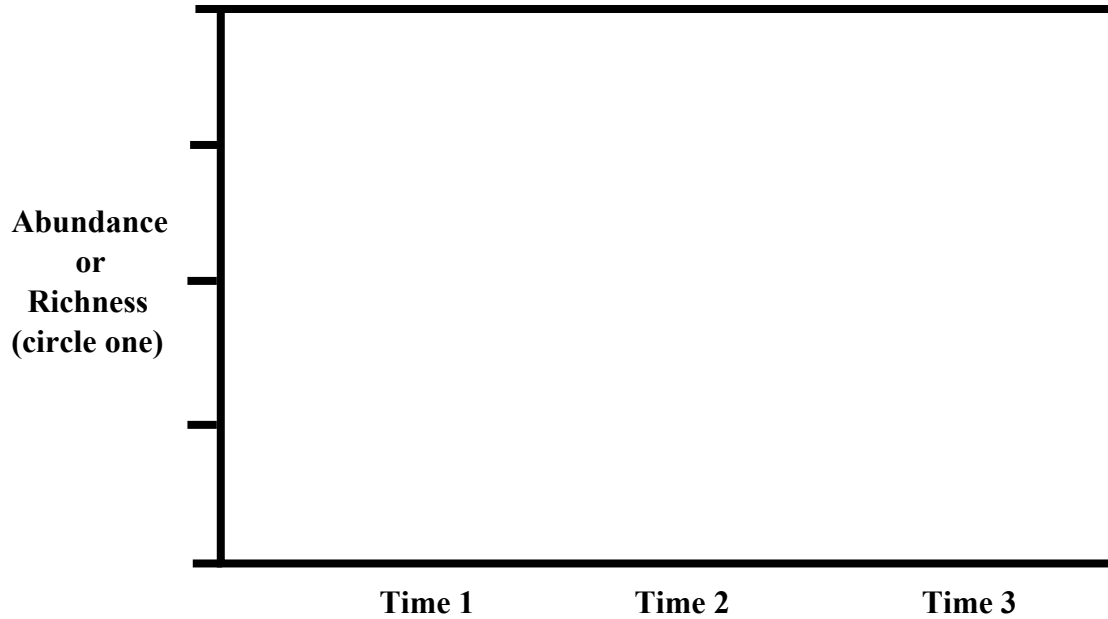
Activity 13: Analyzing Experimental Data

Team Name: _____

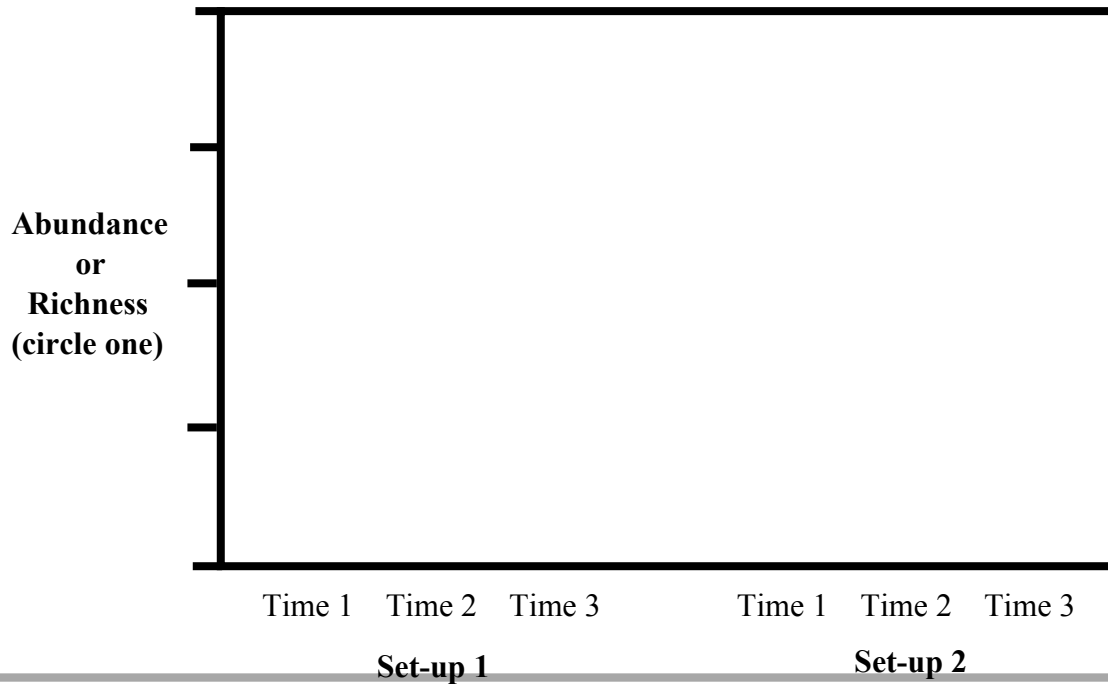
Our Question:

1. Graph your data here.

If your experiment measured changes over time, draw a bar graph below.



If your experiment measured two different set-ups, draw a bar graph below.



2. Describe in your own words what your graph shows.

3. Based on your data, what is the answer to your experimental question?

4. If you could do a follow-up experiment, what question would you ask?

5. What changes in your experimental set-up would be necessary to answer this new question?