



The Bio/Diversity Project

Sonoran Desert Biodiversity Outreach Curriculum Fall 2025 Lesson 8: Scientific Communication through Data Visualization

Grade Level: 6th

Time: 50 minutes

AZ Science Standards:

- 66.L2U1.13 Develop and use models to demonstrate the interdependence of organisms and their environment including biotic and abiotic factors.
- 6.L2U1.14 Construct a model that shows the cycling of matter and flow of energy in ecosystems.

Student Facing Learning Objectives:

- I can visualize a measurement of biodiversity by creating a detailed and refined bar graph.
- I can clearly communicate the meaning of their data visualizations to peers and teachers.

Guiding Questions:

- What is species richness?
- What is species evenness?
- How do you calculate biodiversity?
- Why is it important to measure biodiversity?

Vocabulary:

- Species Richness
- Species Evenness
- Data
- Data Visualization
- Bar graph
- X-axis
- Y-axis
- Graph title
- Scale

Materials:

- markers/colored pencils
- 11x17 Poster paper (one per group)
- Biodiversity Index Tables worksheet (from Lesson 7)
- [L8: Poster Checklist & Guide](#)
- [L8: Bar Graph Steps handout](#)
- [Blank bar graph paper](#) (one for each group)
- [L8: Final Draft Poster Responses](#)
- [L8 Slides](#)



Lesson 8: Scientific Communication through Data Visualization

Mini-Lesson (5 min)

Section Objective: Review concepts of species richness and species evenness while presenting the purpose/value of data visualization.

Generate discussion reviewing line transect activity from last class (3 min):

- “What did the line transect activity help us measure?”
- “Why is it helpful to measure biodiversity? What issues can it help us with?”
- “Why is a biodiverse ecosystem important?”
- “Last class we learned that biodiversity includes both species richness and species evenness. What is species richness? What is species evenness?”

Introduce topic of data visualization (2 min):

- What is data? (numbers, percentages, measurements, facts about a topic)
 - Remind students that they collected data last class when counting species populations for the line transect activity.
 - What is data visualization? (A way to illustrate data in an understandable, interesting, and clear way) Examples: bar graphs, pie charts, line graphs, maps.
 - Today, you will make bar graphs to visually illustrate the biodiversity data you collected last class.
 - Your bar graph will be a part of a poster your team creates to visually communicate the meaning of your biodiversity data.
 - Being a scientist doesn't just mean gathering data through observations and measurements. It also means being able to communicate to others what your data means. That's what we'll practice today.
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Instructions & Work Time (40 minutes)

Objective: Students work to create/design all components of their poster after teachers model/demonstrate essential components.

Bar graph model and work time (15 min):



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- Using [Blank bar graph paper](#), model under the doc cam how to create a bar graph. Before you begin the modeling session, return to students their L7 Biodiversity Index worksheets from last class as they will use that data to create their own bar graphs. You will model this using a fake data table from Lesson 7's line transect activity.
- Before getting started, distribute the [L8: Bar Graph Steps handout](#) to students. Walk students through the steps on the handout and model for them how to do each part by creating your own bar graph. You might consider performing this modeling as a “do-together” where you model one step from the [L8: Bar Graph Steps handout](#) and then allow students time to complete that step on their own while you walk around the room, monitoring and correcting them as needed before you move on to model the next step from the handout (and so on and so on). In this way, the modeling session will be more guided as students complete their bar graph step-by-step using their own data from the line transect activity.

Present Poster Checklist & Show Poster Example (25 min):

- Distribute a [L8: Poster Checklist & Guide](#) handout to each group. Tell students that the checklist contains all the required parts their poster must have. Tell them you will review this checklist with them by showing them what each of these finished components look like while reviewing the example poster made by a teacher.
- Provide groups work time to make their posters. Have each group show you what they wrote for the Species Richness and Species Evenness section before they transfer those ideas onto their poster. If a group needs to revise, help them revise before they place responses on posters.

Wrap Up (5 minutes)

Objective: Groups communicate the scientific meaning of their data to others through the visuals of a poster.

- Each student group pairs up with another student group to share their posters with each other. They must explain all components of their poster to their partner group:
 - Poster Title
 - Explain the bar graph
 - How many species
 - Population of each species
 - What does this data tell us about **species richness** (how many species there are?)
 - What does this data tell us about **species evenness** (are the population of each species mostly the same?)