

Teacher's and Interpreter's Guide to Communicating Graphical Data

Data help us tell science stories, share ideas, and talk about history. This guide provides a three-step process and examples to help you talk an audience through a graph of data.

1. Orient the audience.

Title In plain English explain why you are sharing this graph with your audience. What was the question?

“This graph was used by researchers to see if the guild (habitat and prey-catching method) of dragonflies mattered in determining mercury concentrations.”

Axes Relate the variable on the X-axis (horizontal axis) and the variable on the Y-axis (vertical axis).

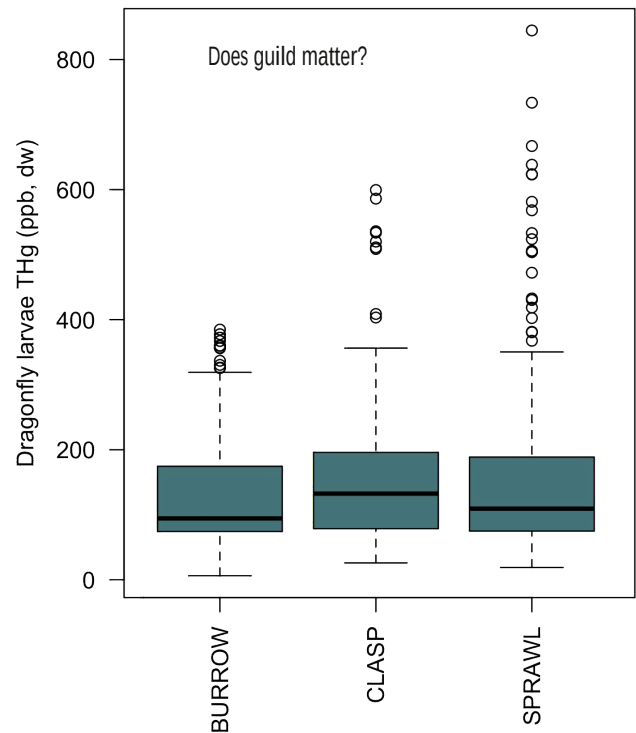
“This graph is about the relationship between dragonfly guild and the concentration of mercury in larvae.”

Scale What is the scale on each axis? If the variables are continuous (numeric) then there will be a scale and not every axis starts at zero! Make sure to explain where the axis starts and stops. If the X-axis displays different categories, explain the different categories.

“The Y-axis goes from 0 to 825 parts per billion”

Units What are units on the axes? Is it a count? A concentration? A volume? Temperature? Explaining the units will help your audience understand the relationship between what is on the X-axis and what is on the Y-axis.

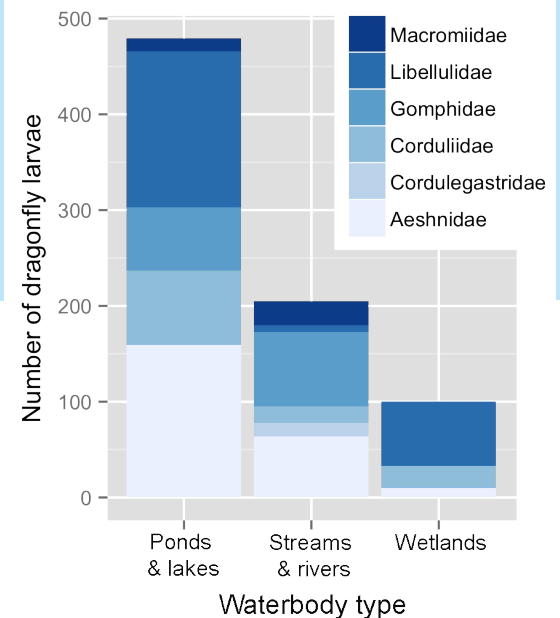
“The X-axis are the guild categories--burrowers, claspers, and sprawlers. The Y-axis is the concentration of total mercury, in parts per billion, in dragonfly larvae.”



Symbols More than one symbol? Point out what each means.

“In the graph below each family is represented by different color.”

Are different dragonfly families found in different types of waterbodies?



2. Describe the data.

What does the graph show? Describe the pattern of the data. If you are comparing groups, is one group higher than the other? One helpful method: Start with the word “As...” and describe the pattern of data from left to right. Use everyday language to explain the patterns you see—clumped, spread-out, flat, humped, going up, going down, jagged, smooth, etc.

“As we move from one waterbody type to the next, all six families are found in Ponds and lakes and Streams and rivers, but only Aeshnidae, Corduliidae, and Libellulidae have been collected from Wetlands. Cordulegastridae were only found in Streams and rivers.”

3. Interpret the data.

Relate the data back to your original idea or question and explain what the data tell you about that original idea. Answer - or ask your group to answer - “What do these data tell us about (the original problem or question?)”. Often patterns in the data will not be very easy to interpret, data are messy! You will have to make the call about the data. Someone in your audience might make a different call—but that’s what makes science such a social endeavor.

“Different waterbody types did have different family diversity (number of families). Streams and rivers were the most diverse, and wetlands were the least diverse.”