PRESENTING YOUR DATA

Now that you have an introduction to interpreting data, its time to come up with your research question (For example, Is the overall health of the creek at your site excellent or poor?).

Consider the following format as you plan your report, poster and final presentation.

I. Title
II. Authors-Name(s)
Step 1: Work on your Introduction
III. Introduction- Begin by reviewing what you know and what you would like to know about your data. Introduce the research question, the data analyzed, and the analysis plan.

Step 2: Work on your Charts
III. Results and discussion-Display only necessary data-and make them large enough for people to read them from a few feet away. Data presented must be discussed in the text. Discuss data trends, correlations (comparisons), and outliers
Divide the work up by designating certain people to work on certain tasks. For example, 2-3 people work on dissolved oxygen graph and discussion, 2-3 work on pH graph and discussion.

Step 3: Work on your Discussion
Initially, focus on no more than two variables. Record your thoughts, impressions, and ideas on paper. Review these periodically. Think about relationships among data. Think about relationships among the data and other external environmental factors, such as rain, wind, air temperature, sunlight, etc.

Sometimes data are found that defy the observed pattern. These are known as data outliers. Rather than dismiss them as unimportant, try to determine their cause (e.g. was the probe working properly?) Sometimes outliers lead to new and interesting interpretations of the data. Were there any outliers in the data you collected? Be prepared to explain how you chose to handle outliers in your data analysis.

QUESTIONS TO HELP YOU WRITE A DISCUSSION
- Was your data possibly affected by external factors?
- Is there sufficient data to answer the research question?
- Did you find any outliers? How can the outliers be explained (hint: were there errors in methods)?
- Are there seasonal patters in D.O., temp, pH, etc? Explain
- Is there a relationship between water quality in this creek and the surrounding land use? Explain.
- If you observed any unusual color changes in the water during a sampling event, how might these results be associated with chemical or biological data obtained?
- If you found an overabundance of blue-green algal blooms in the water, does your chemical data substantiate this physical finding? Describe in a finding statement a congruence or non-congruence.
- Did you see high amounts of soil erosion at your site? Is this observation supported by your chemical data and physical assessment?
- What were rainfall and flow like on and before your sampling days? Consider how such factors affect chemical, biological and physical conditions (particularly E. coli levels)
- Are there storm or sewer outlets at your site? Do they directly enter the body of water you are sampling? Where are they relative to your monitoring sites?
- What sources of runoff can you identify in the watershed? (hint: organic waste, fertilizers)
- How does your data look over time?

- How does your data from various dates compare?
- Consider your data in light of "expected values"-Do your results exceed these values? Do they do so consistently?

Conclusions-Summarize the data analysis and compose the answer to the research question. Are there additional experiments to conduct? Are there unanswered questions and is there a new research question?

Spice the poster up by including pictures of your sample location, etc.

Resources from Sara Heilman:
Land Use Maps
Watershed Maps

Other Resources:
Surf Your Watershed http://www.epa.gov/surf - identify your local watershed

EPA National Maps, Factsheets and Data http://www.epa.gov/iwi/national/

National Monitoring Data http://water.nr.state.ky.us/ww/vm.html

EPA The Quality of Our Nation's Water 305(b) Report http://www.epa.gov/305b/

USGS Water Information Sources http://ga.water.usgs.gov/edu/links.html

Conservation Technology Information Center Know Your Watershed
http://www.ctic.purdue.edu/KYW/wspartners/statewscontacts.html

Run a web search with your watershed or creek as the keyword.

Don't forget to check your local newspaper for information about water quality concerns within your watershed!

# HOW TO MAKE A GRAPH USING EXCEL

HINTS: Display only necessary data-and make them large enough for people to read them from a few feet away. Data presented should be discussed in the text of the report.

Divide the work up by designating certain people to work on certain tasks. For example, 2-3 people work on dissolved oxygen graph and related information, 2-3 work on pH graph and related information, etc.
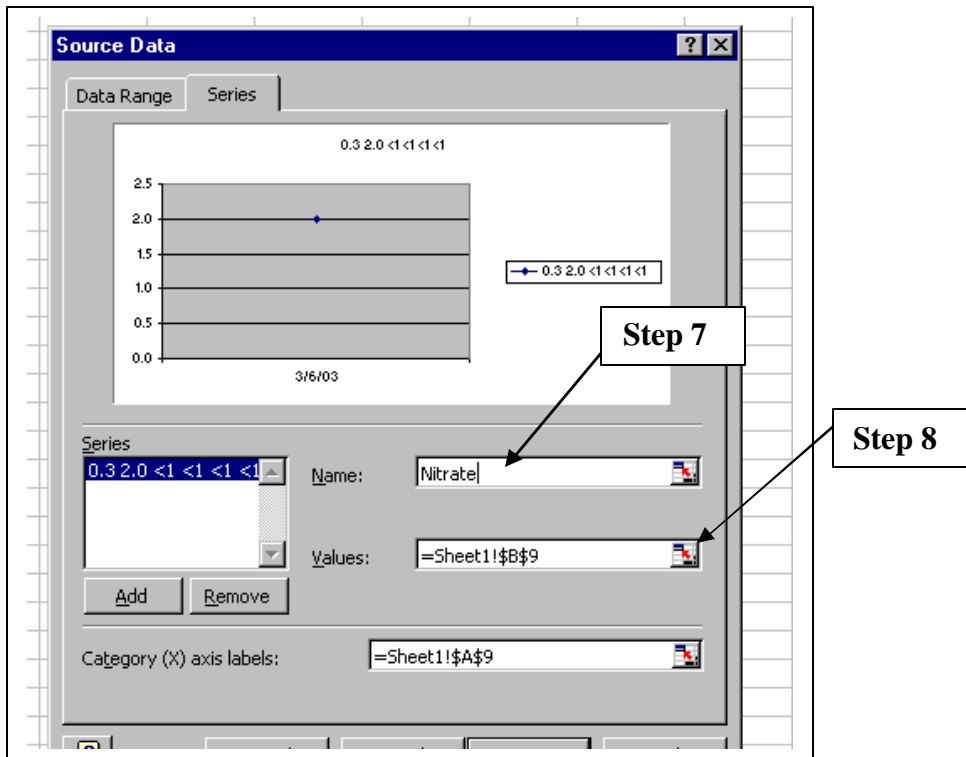
1. Open Excel
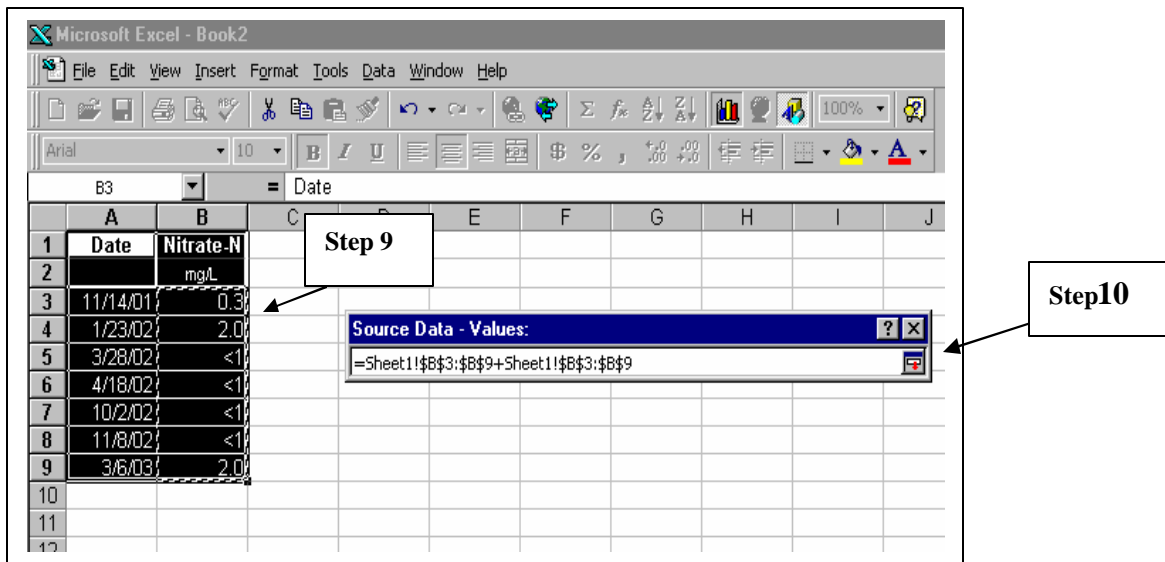2. Create a table such as this:

Step **3**
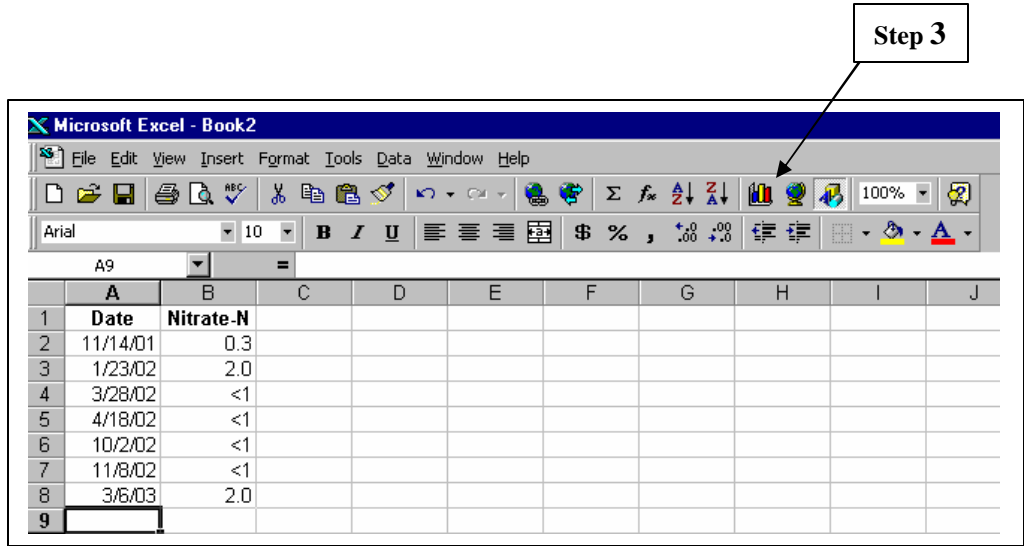
3. Click on the Chart Wizard
4. Choose the chart type you want
5. Click on NEXT >
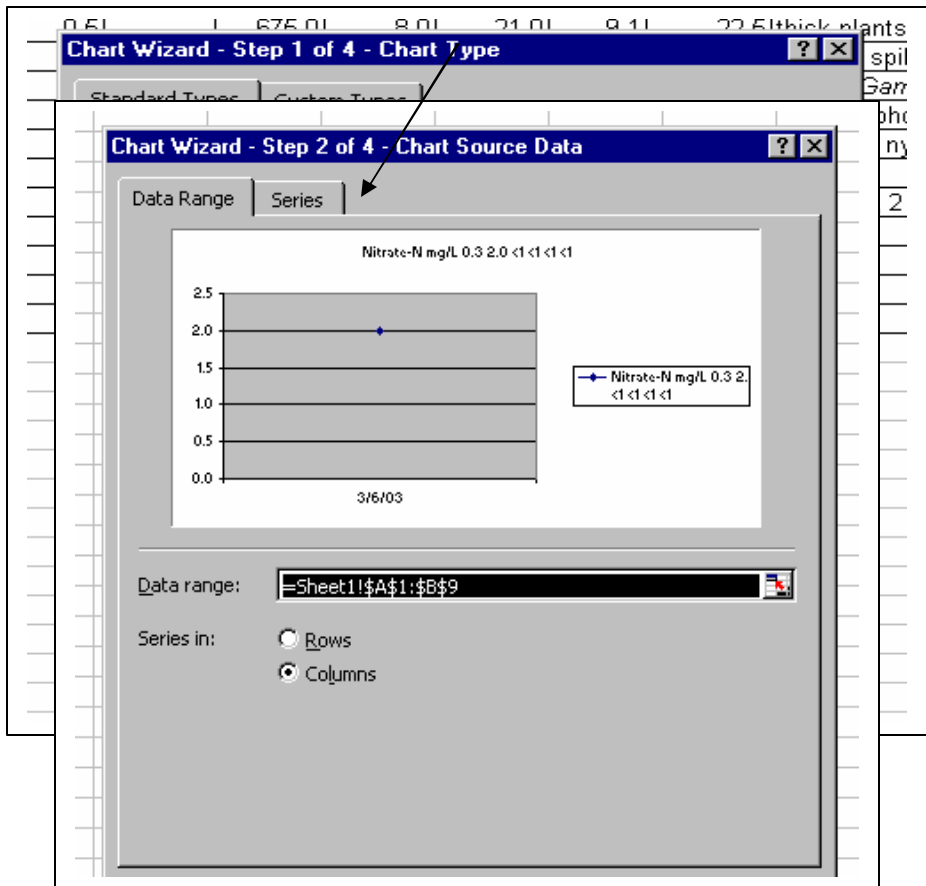
6. If your chart does not look the way you want it, click on the "Series" tab
7. Give your Series a Name

8. Click on the values icon
9. In your table, click the left mouse button and scroll over the numbers you want displayed in your chart


10. Click on the icon in the bottom right corner of the Source Data Values box indicated by the arrow labeled Step 10
11. Follow steps 8-10 for the "Category (X) axis labels:", but this time scroll over the dates you want displayed on your chart.
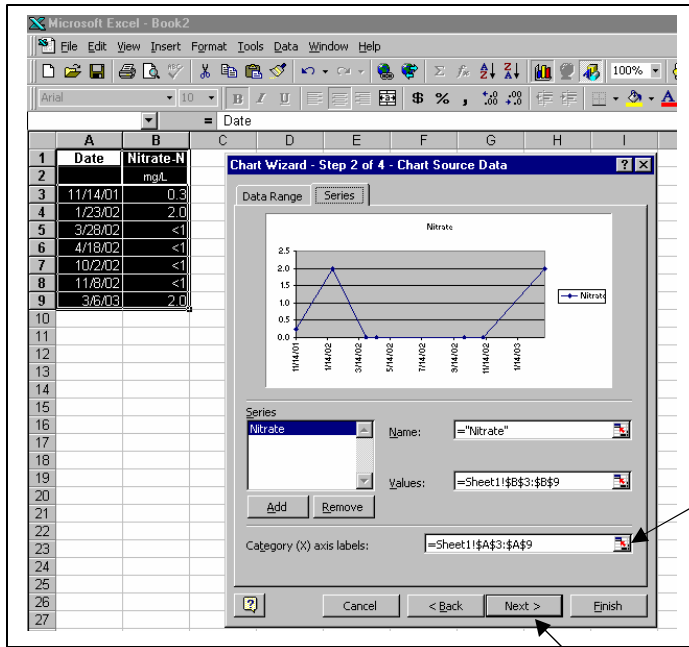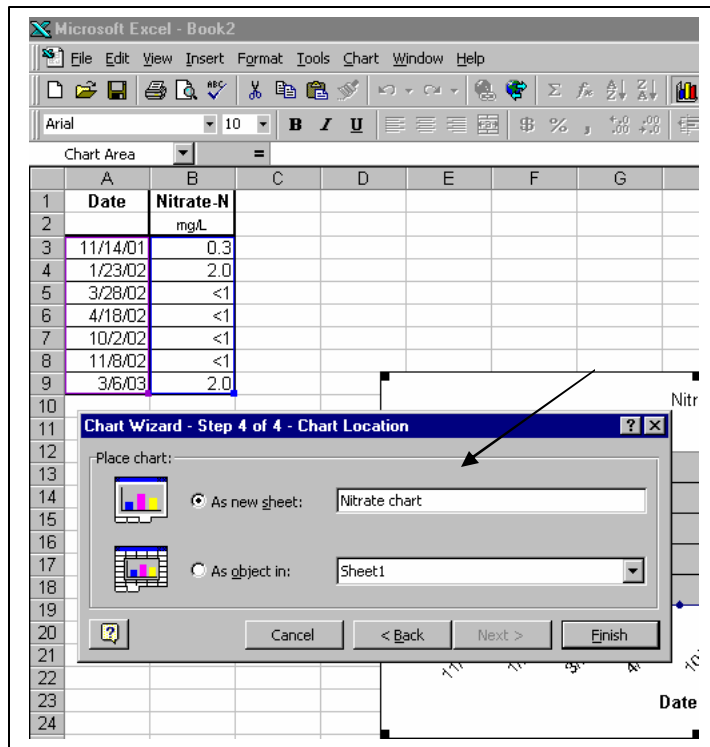
Step 11

Step 12

12. Click on NEXT
13. Type in your "chart title", "Category (X) and (Y) axis" names
14. Click on the Axes menu and change the Primary axis to "Category"
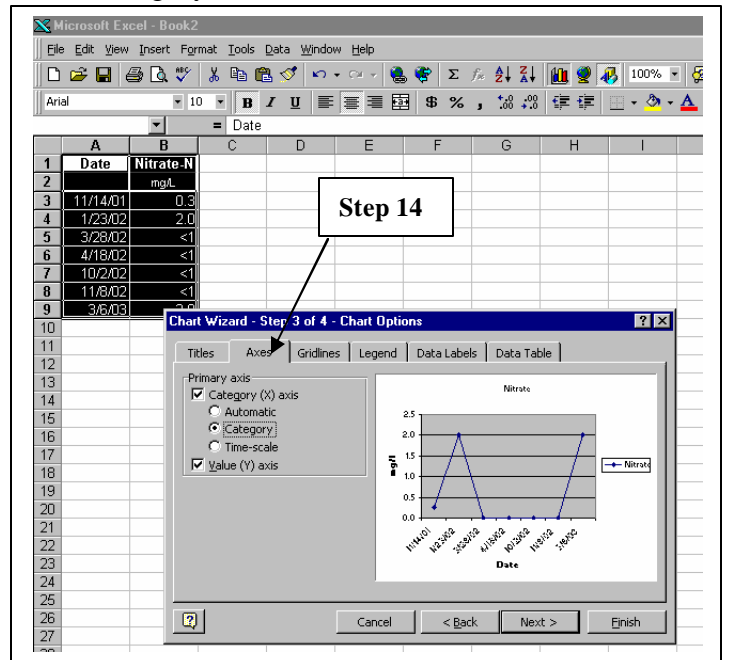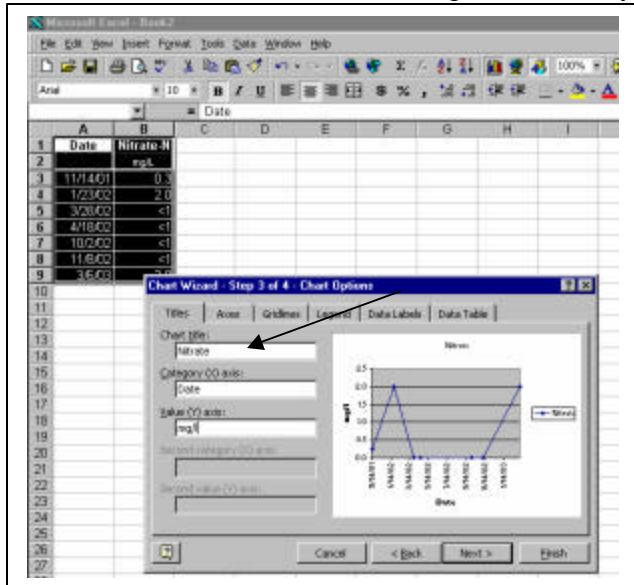
Step 14

15. Change anything else you wish on the other menus.

16. Click on NEXT > then click on "As new sheet:" and title your chart.

17. Click on FINISH
18. SAVE, you genius!
19. Go to the chart menu at the top of the page and you can manipulate your chart as you wish
Good luck!