

Stream Leaders Data Analysis Group Project

I. Research Question:

What is the overall quality of the water in the stream at Joseph Delia Park?

II. Requirements to include in your project:

1. Brief discussion of water quality monitoring programs such as Stream Leaders. Discuss the purpose and the benefits of water quality monitoring. Questions that you should address include but are not limited to: Why should we monitor streams? Why should we be concern about the quality of water in local streams? What is a watershed? (5 points)

2. Summary Table of Data Sets

- Make a table(s) summarizing the data sets from the Fall monitoring and the Spring monitoring at Joseph Delia Park. Your summary tables should include averages of the various measurement parameters. Also, you should provide summary data for all three measurement stations (Physical Survey, Biological/ Macroinvertebrate Collection, and Chemical Analysis). (10 points)

3. Hypotheses

- With your group, closely exam the data sets from both the Fall monitoring and Spring monitoring days. Based on your analysis of the data sets, determine three possible hypotheses that could be supported or contradicted by the data collected. (10 points)
- Choose one of your three possible hypotheses for further explanation and discussion. For example, what data could you use to support the hypothesis? What data could you use to dispute the hypothesis? Can you think of some other data that you could collect that would help you to support the hypothesis? Explain the meaning or implication of the data and the tests that you are using to support or to dispute your hypothesis. (15 points)

4. Conclusion

- Write a conclusion statement about what you have learned about the water quality at Joseph Delia Park as well as what you have learned in general about the process of monitoring streams and stream health. About one-half page in length. (5 points)

5. Works Cited - Include a Works Cited page in MLA format; must have three distinct sources. (5 points)

III. Create a Scientific Poster (25 points)

Your poster should contain the following elements:

- Introduction/Background - This section provides background information about your subject, your research question, and hypothesis
- Results - This section contains the graphs and tables of your data
- Conclusions - This section discusses the results of the experiment, how your results answered the research question, and whether your hypothesis was correct
- Posters should be neat, easy to read, well-organized, colorful, and informative. Posters should contain pictures, diagrams, graphs/tables, and use correct spelling and grammar.

Total Score (75 points): _____ **Due Date:** _____

Next Generation Science Standards integrated in Stream Leaders program

MS-LS2-1 Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. **

MS-LS2-3 Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. **

MS-LS2-4 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

MS-LS2-2 Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. **

MS-LS2-5 Evaluate competing design solutions for maintaining biodiversity and ecosystem services. * **

MS-ESS2-4 Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity. **