



EnvironMentors© Discussion and Conclusions

Teacher and Mentor Summary

The Discussion section represents the main body of students' papers. It is in the Discussion section that students discuss WHAT they learned through their experimental research. They should NOT repeat information obtained through their Literature Research. They should discuss how they conducted their experiments, what data and observations they collected, and what they learned from the data. The Conclusions is the section in which students draw conclusions as to WHY they think what happened, happened. In other words, what they learned and why they think their experiment resulted the way it did.

The Discussion and Conclusions sections of the Research Paper will require more analytic thought and writing by your student. This may naturally cause some students difficulty and anxiety. We have attempted to break down the writing of these sections as simply as possible with the "fill in the blank" questions found on the next page.

You may or may not choose to have students follow these writing exercises to help get them started. The actual writing and presentation of the Discussion and Conclusions sections should be developed on separate paper. We require at least one 8 ½ x 11 page, 12 point font, for each of the Discussion and Conclusions sections. You may wish to ask for more.

Objectives

- Conduct an in-depth analysis of the experimental results
- Write the analysis in paragraph form

Activities

- Work through discussion of results, including thoughts about why he/she found the results he/she did
- Analyze graphs that resulted from calculating the data statistics
- Discuss how the results compared to the original hypothesis
- Identify any further necessary research
- Identify future uses for the results

Suggested Rubric

Total Value= 10 points To what extent did the student:

- Write a clear discussion about the experimental results
- Analyze the original hypothesis in relation to the results
- Identify holes/errors in the results
- Identify future uses for the experimental results



Student Discussion and Conclusions Worksheet

Now that you have completed your research and analyzed your data, it is time to reflect back on your project and draw conclusions from your work. The Discussion and Conclusions section is the part of your research paper where you can explain your results.

Discussion

WHAT did you learn through your experimental research? Do NOT repeat information you obtained through your Literature Research. DO discuss **how you conducted your experiment, what data and observations you collected, and what you learned from the data**. If you are nervous about writing up your results or don't know where to start, use the "starter questions" below to help get you started on your Discussion.

Eventually, you will take the answers to the following questions and write them up in paragraph form. They should be at least one to two pages long.

Discussion Starter Questions

1) How did you conduct your experiment? What observations and data did you need to collect to answer your research question? (Refer to your research design write-up, but explain WHY you chose to design your experiment as you did.)

2) Where was your study site(s) located?

3) What was your control set and what was your experimental set?

4) How many trials of data collection did you conduct?

5) What did you find out? What did your data tell you? (Refer to your graphs and charts from the Data Analysis section for visual examples of your results.)

6) Can you identify any sources of error in your original experimental design or the actual experimentation that might have skewed your results? In what ways could they have affected your data? What are ways those errors could be avoided in future experiments?

Conclusions

The Conclusions is the section in which you draw conclusions as to **what you learned and why you think your experiment resulted the way it did**. Following are some “Starter Questions”. All of the following questions must be addressed in your Conclusions section. Your Conclusion also needs to be written up on separate paper, be at least one page in length.

Conclusions Starter Questions

1) Why do you believe WHAT happened, happened in your experiment? “I believe my experiment resulted the way it did because...”

2) Do these results prove your hypothesis true or false? Why?

3) What do these results have to say about your research question? Do you believe your research question has been fully answered? If so how? If not, why not?

4) Based on what you learned, what additional research do you think should be conducted in order to further advance understanding of your project topic? “I believe the following forms of research should be conducted:

Now, take it to the next step: How can society use your results to make the environment better?

5) Based on what you learned, what are several examples of creative solutions that society could put in place to help lesson the environmental impact related to your project topic?3

Some examples of creative solutions include:

- * All schools across the US should meet Green Building design standards and be heated with solar electricity.
- * The national zoo should develop more and better interpretive signs to alert visitors to the need to take personal actions to protect endangered wildlife.
- * The DC council should require builders of the new baseball stadium to include significant investments in cleaning up the Anacostia River to off set environmental damage likely to occur as a result of construction.

What's your creative solution?!

Don't stop here. Maybe you have more than one creative solution. Never underestimate the power of what one person can do. Write on!

and on.....(for extra credit!)

Remember, Type up your answers to these questions in a 2-3 page paper and add it to the other pieces of your research paper. Save the document and print a copy for your Teacher or Coordinator.

Congratulations! You have completed the last piece of your Research Paper!

Due: _____