

SCI 200 Project Part One: Second Draft Guidelines and Rubric

Overview: In previous modules, you identified an issue, developed a research question, and examined sources that could help you explore the issue. You also considered the scientific principles related to your topic, and how you might communicate your findings to a specific audience. Building on these elements, you will formulate a hypothesis related to your issue. Then, applying what you learned about the process of science, you will explain the next steps that natural scientists would take to support or refute your hypothesis. What kind of evidence would they look for? What kind of tests they need to conduct? Throughout this course, you explored a variety of specific cases in which natural scientists addressed issues, tested hypotheses, and developed solutions to problems. Many of their solutions have become key discoveries that we rely on today for health, safety, and other practical uses. So, as you consider your hypothesis and the next steps a scientist would take, reflect back on these examples. This reflection is the final piece of your planning document, and you will use it to develop your presentation in Module 8.

Prompt: You will build on the elements you composed in your first draft and develop your hypothesis. After you have your hypothesis, explain what steps a natural scientist would take to either refute or support your hypothesis. By the end of Module Six, you will fine tune the entire planning document to be submitted to your instructor.

Specifically, the following **critical elements** must be addressed:

- I. **Introduction:** At this point, you should have received feedback from your instructor. For this second draft, review and make any necessary revisions or adjustments to the following elements:
 - a. Describe the **issue** in the natural sciences that you have selected to investigate. Why is this issue significant? (You identified this issue in Module One, but how would you revise this piece now that you have received instructor feedback and investigated your sources?)
 - b. Describe at least three **science resources** that you could use to investigate the issue you selected. Your sources must be relevant to your issue and must be of an academic nature appropriate for the issue. In your description, consider questions such as: What are the similarities and differences in the content of your sources? What makes them appropriate and relevant for investigating your issue? What was your thought process when you were searching for sources? How did you make choices?
 - c. Based on your review of science resources, develop a **specific question** related to the issue you selected. In other words, what would you like to know more about?
- II. **Body:** You should also receive instructor feedback about this section and continue to consider your evidence. For this second draft, review these sections and make any necessary revisions or adjustments to the following elements:
 - a. Identify an **audience** that would be interested in your issue and the question you developed. For example, who would benefit most from hearing your message, or who could best help in addressing the issue?
 - b. Describe how and why you can tailor your **message** to your audience, providing specific examples. For example, will your audience understand scientific terminology and principles, or will you need to explain them? How will you communicate effectively with your audience?
 - c. **Identify** the natural science **principle(s)** that apply to your question and issue. For example, if your issue is global climate change, the principle you might identify is that the sun is the primary source of energy for Earth's climate system.

- d. **Explain** how the **principle(s)** you identified apply to your issue and question. In other words, how are the natural science principle(s) you identified relevant to your question and issue?

- III. **Conclusion:** In this section, you will conclude your research investigation by discussing future directions for research related to your question. Specifically, you should:
- Formulate a **hypothesis** that addresses the question you developed. Make sure your hypothesis is based on your investigation of your question.
 - Explain how a **natural scientist** would go about collecting evidence to support or refute the hypothesis you formulated. In other words, what would the next steps be if a natural scientist were to continue researching your hypothesis? Make sure to support your response with the natural science resources that you selected.
- IV. Provide a **reference list** that includes all of the science resources you used to investigate your issue and question so far. Apply feedback from your instructor to ensure that your list is formatted according to current APA guidelines (or another format, with instructor permission).

Rubric

Guidelines for Submission: The second draft of your planning document should be 3–5 pages, double spaced, with 12-point Times New Roman font and one-inch margins. You should use current APA guidelines (or another format approved by your instructor) for your citations and reference list.

Critical Elements	Proficient (100%)	Needs Improvement (75%)	Not Evident (0%)	Value
Introduction: Issue	Describes selected issue in natural sciences and its significance	Describes selected issue in natural sciences and its significance but with gaps in detail or clarity	Does not describe selected issue in natural sciences and its significance	5
Introduction: Science Resources	Describes at least three relevant and appropriate science resources that could be used to investigate selected issue	Describes at least three science resources that could be used to investigate selected issue but with gaps in appropriateness, relevance, or detail or is missing one or more sources	Does not describe science resources that could be used to investigate selected issue	10
Introduction: Specific Question	Develops specific question related to selected issue based on review of science resources	Develops specific question related to selected issue, but question is not based on review of science resources	Does not develop specific question related to selected issue	5
Body: Audience	Identifies an audience that would be interested in issue and question, citing source(s)	Identifies an audience, but audience is not appropriate for issue and question, or there are gaps in citation	Does not identify an audience	10
Body: Message	Describes how and why message can be tailored to audience, providing specific examples and citing source(s)	Describes how and why message can be tailored to audience but with gaps in examples or citation	Does not describe how and why message can be tailored to audience	10

Critical Elements	Proficient (100%)	Needs Improvement (75%)	Not Evident (0%)	Value
Body: Identify Principle(s)	Identifies natural science principle(s) that apply to issue and question, citing source(s)	Identifies natural science principle(s) that apply to issue and question but with gaps in accuracy or citation	Does not identify natural science principle(s) that apply to issue and question	10
Body: Explain Principle(s)	Explains how identified principle(s) apply to issue and question, citing source(s)	Explains how identified principle(s) apply to issue and question but with gaps in detail, clarity, or citation	Does not explain how identified principle(s) apply to issue and question	10
Conclusion: Hypothesis	Formulates hypothesis that addresses question based on investigation of question	Formulates hypothesis that addresses question, but hypothesis is not based on investigation of question	Does not formulate hypothesis that addresses question	15
Conclusion: Natural Scientist	Explains how a natural scientist would go about collecting evidence to support or refute hypothesis	Explains how a natural scientist would go about collecting evidence to support or refute hypothesis, but explanation has gaps in clarity, detail, or logic	Does not explain how a natural scientist would go about collecting evidence to support or refute hypothesis	15
Reference List	Provides reference list that includes all science resources used to investigate issue and question, and list is formatted according to current APA guidelines	Provides reference list that includes all science resources used to investigate issue and question, but list has gaps in adherence to current APA formatting guidelines	Does not provide reference list that includes all science resources used to investigate issue and question	5
Articulation of Response	Submission has no major errors related to citations, grammar, spelling, syntax, or organization	Submission has major errors related to citations, grammar, spelling, syntax, or organization that negatively impact readability and articulation of main ideas	Submission has critical errors related to citations, grammar, spelling, syntax, or organization that prevent understanding of ideas	5
Total				100%