

**Title**

Featured scientist: [name] from [institution]

*Research Background:* Write clearly and concisely, keeping in mind your audience. Avoid jargon. Paragraphs should be kept short (~100-200 words per paragraph).

**Paragraph 1:** Scientific background knowledge. Get the reader excited about the research – what do they need to know to understand the topic and experiment?

**Paragraph 2:** Bring in exploration and discovery – discuss how you first became interested in the topic and how you developed your hypothesis. If applicable, discuss prior experiences and preliminary data that lead to the study.

**Paragraph 3:** State your hypothesis and describe your methods. A hypothesis is an explanation for an observation, not just a description of the pattern you expect to observe. Describe the experiment or study and your data – What is a simple description of the study design? What are the variables that were manipulated or measured? What would you expect to observe in these variables if your hypothesis were true?

**Include a picture** of the experiment or study species. A picture of the researcher collecting data is best.

*Scientific Question*: Ask a scientific question that can be answered with the data provided. A scientific question should frame how your research contributes to the field, not simply ask for a summary of patterns in the data. Avoid yes/no questions.

*What is the hypothesis?* Find the hypothesis in the Research Background and underline it. A hypothesis is a proposed explanation for an observation, which can then be tested with experimentation or other types of studies. Underline your hypothesis in the Research Background text.

*Scientific Data:*

**Use the data below to answer the scientific question:** Include a table of data from your research. You may have to simplify the data so that it is manageable for a student who is graphing by hand, but don’t worry if your data is messy – that is part of research! You may include data on other variables so students will have to figure out those that address the scientific question.

What data will you graph to answer the question?

 Independent variable:

Dependent variable:

*Draw your graph below*:

Please provide a graph of your data along with your data in an Excel sheet. We will use this data to create three graph levels:



*Interpret the data:* In this section, we are asking students to use data in 3 different ways: 1. observing and identifying trends, 2. using data to support a claim, and 3. placing quantitative data in the context of science.

What trends, changes, or differences do you see in the table or on the graph?

Describe the most noticeable trends or patterns in the data. For example, category X has the highest level of Y. As X increases, Y decreases.

What is the relationship between the dependent and independent variables? What does the relationship between the variables mean?

Elaborate on the relationship between the predictor and response variables. What is the scientific significance of this relationship? Relate back to the information provided in the background.

Make a claim that answers the scientific question.

Write out the claim, or statement that answers the scientific question.

Support your claim using data as evidence. Reference specific parts of the table or graph.

Describe how students can support this claim with data. Indicate what numbers from the table or points on the graph best support the claim, or what parts of the graph students could circle for support.

Explain your reasoning and how the data supports your claim. Connect the data back to what you learned about [major theme from Research Background].

Fill in blanks above with key concepts or ideas that will remind students of the broader scope of the data presented here. Describe your reasoning. Try to avoid using the words “conclusion,” “conclude,” or “proof,” which can send the message that the case is closed and that further studies and interpretations cannot occur.

What do the data from this study tell us about the scientist’s hypothesis?

Does the data support your hypothesis? In what way does the data follow predictions, and in what ways does it not? Are there alternative interpretations of the data? Are there alternative hypotheses or other mechanisms that could be tested?

*Your next steps as a scientist:* Science is an ongoing process. What new question do you think should be investigated? What future data should be collected to answer your question?

Describe your next steps as a scientist, even if they are just future plans. The teacher can then share these with the class when they discuss this section. List any future questions you tested or plan to test in this study system. Are there questions that students could address in their own inquiry experiment?