Creating a Plan to Investigate *[type context here]*

*[Type an introductory paragraph to describe the context*

*of the research question to be investigated.]*

*[Insert photograph (if necessary) to provide additional context.]*

In this exercise, you will **create a plan to investigate** *[type the research question to be investigated].*

|  |  |
| --- | --- |
| **Research Question:** | *[Type the research question to be investigated here.]* |
| **Develop Your Plan:** | Develop your plan for investigating this research question. Your plan must be very specific. Be sure to address each of these four points in your plan:   * **Describe** what you would do (and when you would do it) to investigate the research question. * **Describe** how you would obtain your observations or measurements and what instruments or equipment you would use. * **Provide enough detail** so that another person could carry out the investigation according to your plan. * **Describe** at least **one external factor** that could affect the results of your investigation. |

In your research plan, an **external factor** is anything other than *[type the independent variable here]* that affects *[type the dependent variable here]*. It is important to be aware of possible external factors because they could affect the research. The external factors rather than *[type the independent variable here]* might affect *[type the dependent variable here]*.

You must prepare this research plan by yourself. However, it is okay if carrying out the plan you create requires others to help you. It also is okay if your plan would require going to places away from your school or using materials not available at your school.

On the paper provided, describe the plan you create. Again, be very specific and careful to address each of the four points listed above.

Scoring Plan

**Plan Characteristics**

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| Plan conveys that *[type the independent variable here]* is what might affect *[type the dependent variable here]*.  *For example, the point is awarded if the student*   * *explicitly states which variable affects the other variable,* * *labels variables as “independent” and “dependent,” or* * *implicates a relationship (e.g., hypothesizing a data trend indicating a relationship between the variables).* | 1 pt. |
| Plan describes a way to measure *[type the independent variable here].* | 1 pt. |
| Plan conveys that *[type the dependent variable here]* might be affected by *[type the independent variable here]*. | 1 pt. |
| Plan describes a way to measure *[type the dependent variable here].* | 1 pt. |
| Plan consists of a logical sequence of actions or steps. | 1 pt. |
| Plan description is sufficiently detailed to allow an independent researcher to replicate its fundamental elements (with replication of any errors within the plan). | 1 pt. |

**Data Quality**

|  |  |
| --- | --- |
| Plan describes how the *[type the independent variable here]* is measured using *[type acceptable methods of measuring the independent variable here]*.  *Point is awarded if an appropriate means of measurement is proposed, even if it is not the anticipated method listed above.* | 1 pt. |
| Plan describes how the *[type the dependent variable here]* is measured using *[type acceptable methods of measuring the dependent variable here]*. | 1 pt. |
| Plan includes an *external factor*, such as *[type 2–3 examples],* that could also influence *[type the dependent variable here].* | 1 pt. |

**Repetition of Measurements**

|  |  |
| --- | --- |
| Plan includes measurements of the *[type the dependent variable here]* at **different** values or levels of *[type the independent variable here].*  *The dependent variable must be measured at least once for at least two values or level of the independent variable.* | 1 pt. |
| Plan includes measurements of the *[type the dependent variable here]* for at least three different values or levels of *[type the independent variable here].* | 1 pt. |
| Plan includes multiple measurements of the *[type the dependent variable here]* at **each** value or level of *[type the independent variable here]* for which data would be collected.  *The dependent variable must be measured multiple times for at least two values or level of the independent variable.* | 1 pt. |