Analyzing your Data and Drawing Conclusions

As you begin to analyze the data you collected through experiments, make sure your team sets aside time to review the information with your Team Advisor and discuss how best to showcase your results and conclusions.

Within your Mission Folder, you should state whether your hypothesis was true or false, what you learned from your experiments and how your project could be improved.

Below you will find helpful questions for you and your teammates to consider as you review your data.

1. **Data Analysis:** Review data and results critically

   a. Is the data complete and accurate?

   b. Do I need to collect more data?

   c. Did I make any mistakes in my research or experimentation?

2. **Summarize Data:** What is the best way to summarize the data?

   a. Calculate an average of data collected?

   b. Summarize the results as a ratio or percentage?

   c. Display data clearly and concisely?

3. **Display Data as a Graph or Table**

   a. Place independent variable on the x-axis of a graph

   b. Place dependent variable on the y-axis of a graph

   c. Label axes

   d. Include units of measurement

   e. Show each set of data in a different color or symbol

   f. Include a legend

   g. Convert data to show all units of measurement on the same scale

Now that you have analyzed your data, the last step is to draw your conclusions. Conclusions summarize whether the experiment or survey results support or contradict the original hypothesis. Teams should include key facts from your team's background research to help explain the results.

If the results of your experiment support that your hypothesis is **TRUE**, summarize how this occurred by comparing the relationship between the independent and dependent variables.

If the results of the experiments or surveys do NOT support the hypothesis and prove the hypothesis is **FALSE,** you should not change or manipulate the results to fit the original hypothesis. Simply explain why things did not go as expected. Scientists often find that results do not support their hypothesis. They use those unexpected results as the first step in constructing a new hypothesis. If you think you need additional experimentation, you should describe what you think should happen next.

Try an activity here!