GUMMY BEAR PROJECT
2019 Tips on Key Points to Discuss in Formal Written Report Sections

General Comments

- The goal of the written report is write a report your parents and friends could understand.
- Use hedging words. Round to units or 1 decimal for readability.
- Do NOT use Treatment 1 or T1 !!!!! Use clear descriptions (30°, 1 band, top position, etc.).

Introduction (about 2 paragraphs)

This should be a concise summary describing your experiment.

- Summarize the experiment by describing the experimental units, factors, treatments.
- State what your initial hypothesis was.
- Discuss the 3 key components of a well-designed experiment, why they are important and how they relate to your project (do not rewrite what you wrote in the working document).

Summary of your Treatment Data (several short paragraphs)

Remember CUSS and BS. Use hedging words. Round to units or 1 decimal for readability.

- You should review the summary statistics and graphs before writing this section:
- Paragraph 1 describes the each treatment. Include numbers here.
  - A sentence for each treatment. Each sentence describes in context the shape, center, spread, and anything unusual.
- Paragraph 2 compared the treatments. No numbers in this paragraph.
  - A sentence that compares the center for your treatments
  - A sentence that compares the spread for your treatments
  - A couple of sentence discussing the shape, outliers and anything that was unusual. Then discuss why you think they occurred.
- Paragraph 3 discussing what you found interesting when analyzing the treatment data.

Summary of Inference Procedures (a minimum of 3 paragraphs)

Summarize the results of your Gummy Bear experiment so someone without a statistical background could understand

- Summarize your test of hypothesis
  - What statistical test did you use? No numbers are needed. Just explain what were the results of the test(s)? Did the results support your hypothesis?
- Summarize your confidence intervals
  - What inference procedures did you use? What confidence level did you use?
  - For your confidence intervals, provide the point estimate (the mean) and the margin of error.
  - What does the confidence interval tell us about the distance traveled?
- Discuss how the test of hypothesis and confidence interval results compare (or do not compare).
  - Remember: a 1-tail TOH does not equal a CI but they are both inference tests.
- BONUS PARAGRAPH: Expand your statistical knowledge by thinking about the implications for other applications or inference about the population. Questions to think about"
  - What inference can you make when you take an SRS from the population of interest?
  - What inference can you make when you randomly assign treatments in a well-designed experiment?

Reflections on Your Experiment (3 short paragraphs)

- What went wrong? No experiment is perfect!
- Were there any results that surprised you?
- What would you do differently if you were to do this experiment again?
- Why was this project interesting (or not)?