

Introduction to Inference

Project 10 AHOY MATES

The company claims, "There are over 1000 chips in every bag." How can they make such a claim? As a consumer, your job is to design an experiment to check the claim made by the company.

1. Describe a sampling procedure you would use to gather the data. Include how to select: the bags, cookies in the bag, and chips within the cookie.
2. Consider the sample size you think is needed for the problem. Choose a sample size for the number of cookies that will allow for an approximately normal distribution of the sample mean number of chips within a cookie.
3. You are now ready to begin your count. Most students consider this to be a "crummy" problem. State how you decided to "count" the partial chips?
4. Make a graphical display of the distribution of chips within the cookies.

5. Write a 95% confidence interval for the number of chips per cookie?

6. To consider the number of chips in a bag, you must now consider the number of cookies in the bag. While we have not chosen a large number of bags of these cookies, we can make an observation about the number of cookies in the bag. What is it?

7. Using the distribution of chips per cookie, and the number of cookies in the bag as your guide, write a 95% confidence interval for the number of chips in the bag by making a linear transformation of the data. $\mu_{\text{chips in bag}} = n \mu_{\text{chips in cookie}}$ and $\sigma_{\text{chips in bag}} = n \sigma_{\text{chips in cookie}}$

8. What do you think about the company's claim?

9. The company has just hired YOU as chief statistician. Address the problem with a hypothesis testing procedure. State the hypotheses (H_0 and H_a) for the claim made by the company. Report the value of the test statistic and the p-value of the test.

10. Write a word conclusion (approximately 50 words) to the problem that you would submit to the company president.

11. Identify five items relating to statistics that you have learned from this project.

1)

2)

3)

4)

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You may now eat the data. Got milk?