

Units 8 & 9 – Inference for Means and Proportions (3.5 Weeks)

Enduring Understandings

- Confidence intervals are effective tools for estimating the mean of a population. [C2d]
- Significance tests determine the likelihood of a sample. [C2d]
- The analysis is only as good as the data. [C3]
- Confidence intervals are effective tools for estimating the proportion of a population. [C2d]
- Significance tests determine the likelihood of a sample. [C2d]

C2d: The course provides instruction in each of the following four broad conceptual themes outlined in the Course Description with appropriate emphasis on statistical inferences.

Essential Questions

- How can we determine the mean of a population with a “small” sample?
- To what extent are significance tests reliable?
- How can we determine the proportion of a population with a “small” sample?
- To what extent are significance tests reliable?

C3: The course draws connections between all aspects of the statistical process, including design, analysis, and conclusions.

Knowledge and Skills

- Check assumptions for confidence intervals and significance tests of means (both 1 sample and 2 sample)
- Find confidence intervals for means (both 1 sample and 2 sample)
- Conduct significance tests for means (both 1 sample and 2 sample)
- Determine sample size for a desired margin of error
- Check assumptions for confidence intervals and significance tests of proportions (both 1 sample and 2 sample)
- Find confidence intervals for proportions (both 1 sample and 2 sample)
- Conduct significance tests for proportions (both 1 sample and 2 sample)
- Determine sample size for a desired margin of error

Sample Assessments/Activities

- Parking lot proportions: Students venture out to the school parking lot and collect data about the vehicles in the staff lot as well as the student lot. Data such as car color, make, country of origin, and type of car. Students then construct confidence intervals and run significance tests to determine if and what differences there are between the students' cars and staffs' cars. [C2d, C4]
- Students complete a variety of released free response items focused on inference for means and proportions.

C4: The course teaches students how to communicate methods, results, and interpretations using the vocabulary of statistics.