Unit #4: 1 Sample Hypothesis Testing

Content Area: **Mathematics**
Course(s): **Statistics H**
Time Period: **Semester 1 & 2**
Length: **4 weeks**
Status: **Published**

Standards

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.S-ID.B.5	Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.
MA.S-IC.A.1	Understand statistics as a process for making inferences about population parameters based on a random sample from that population.
MA.S-IC.B.4	Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.
MA.S-IC.B.5	Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.

Enduring Understandings

1) Understanding that hypothesis testing is merely a formal way of constructing and having an argument and then deciding with confidence that one argument is correct.

2) Recognizing the specific circumstances that determine the type of hypothesis used.

Essential Questions

1) Will students be able to construct various confidence intervals to estimate means, proportions, standard deviations, and variances?

2) Will students be able to calculate the probablilities of Type I and II errors?

3) Will students be able to perform 1 and 2-sided hypothesis tests on means, proportions, standard deviations, and variances?

4) Will students be able to utilize DESMOS to construct confidence intervals and perform various hypothesis tests?

5) Will students be able to understand the connection between a p-value and a critical value, and use p-values to determine the rejection of a hypothesis test?

Knowledge and Skills

1) Construct confidence intervals to estimate means, proportions, standard deviations, and variances

2) Calculate the probabilities of Type I and II errors

3) Perform 1 and 2-sided hypothesis tests on means, proportions, standard deviations, and variances

4) Construct confidence intervals and perform the calculation portions of a hypothesis test utilizing DESMOS.

5) Understand what a p-value is, it's relationship with critical values, and determine to reject or fail to reject a hypothesis test based on the p-value.

Transfer Goals

1) Original clams/arguments are assumed true unless shown to be false, then the original claim is rejected.

2) The criteria used to reject the original claim is based upon the alternative claim/argument, and the significance level.

Resources

Elementary Statistics 10th Edition

https://doralacademyprep.enschool.org/ourpages/auto/2015/8/18/48840047/Elementary%20Statistics%2010e.pdf