Unit #3: Sampling Distributions

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

Standards

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.
9-12.HS-PS2-5.3.1	Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly.

Enduring Understandings

1) Understanding how taking multiple random samples from any data leads to very predictable results.

2) Recognizing the similarities and differences between comparing the means vs. the proportions of collected samples.

Essential Questions

1) Will students be able to identify differences in rules between sampling with and without replacement?

2) Can students recognize and answer questions involving sampling distributions of means, proportions, and differences between two of each?

Knowledge and Skills

1) Generate, find mean and standard deviation of sampling distributions with and without replacement

2) Apply the Central Limit Theorem to answer questions involving sampling distributions of means and proportions

Transfer Goals

1) It can be expensive, time consuming, and unrealistic to collect data from an entire population, verses taking multiple samples.

2) Samples, taken randomly, can be used to predict populations of data with calculable accuracy.

Resources

Elementary Statistics 10th Edition

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