Learning Targets

Probability and Sampling

Lesson 1: Mystery Bags

- I can get an idea for the likelihood of an event by using results from previous experiments.

Lesson 2: Chance Experiments

- I can describe the likelihood of events using the words impossible, unlikely, equally likely as not, likely, or certain.

- I can tell which event is more likely when the chances of different events are expressed as fractions, decimals, or percentages.

Lesson 3: What Are Probabilities?

- I can use the sample space to calculate the probability of an event when all outcomes are equally likely.

- I can write out the sample space for a simple chance experiment.

Lesson 4: Estimating Probabilities Through Repeated Experiments

- I can estimate the probability of an event based on the results from repeating an experiment.

- I can explain whether certain results from repeated experiments would be surprising or not.

Lesson 5: More Estimating Probabilities

- I can calculate the probability of an event when the outcomes in the sample space are not equally likely.

- I can explain why results from repeating an experiment may not exactly match the expected probability for an event.

Lesson 6: Estimating Probabilities Using Simulation

- I can simulate a real-world situation using a simple experiment that reflects the probability of the actual event.

Lesson 7: Simulating Multi-step Experiments

- I can use a simulation to estimate the probability of a multi-step event.

Lesson 8: Keeping Track of All Possible Outcomes

- I can write out the sample space for a multi-step experiment, using a list, table, or tree diagram.

Lesson 9: Multi-step Experiments

- I can use the sample space to calculate the probability of an event in a multi-step experiment.

Lesson 10: Designing Simulations

- I can design a simulation to estimate the probability of a multi-step real-world situation.

Lesson 11: Comparing Groups

- I can calculate the difference between two means as a multiple of the mean absolute deviation.

- When looking at a pair of dot plots, I can determine whether the distributions are very different or have a lot of overlap.

Lesson 12: Larger Populations

- I can explain why it may be useful to gather data on a sample of a population.

- When I read or hear a statistical question, I can name the population of interest and give an example of a sample for that population.

Lesson 13: What Makes a Good Sample?

- I can determine whether a sample is representative of a population by considering the shape, center, and spread of each of them.

- I know that some samples may represent the population better than others.

- I remember that when a distribution is not symmetric, the median is a better estimate of a typical value than the mean.

Lesson 14: Sampling in a Fair Way

- I can describe ways to get a random sample from a population.

- I know that selecting a sample at random is usually a good way to get a representative sample.

Lesson 15: Estimating Population Measures of Center

- I can consider the variability of a sample to get an idea for how accurate my estimate is.

- I can estimate the mean or median of a population based on a sample of the population.

Lesson 16: Estimating Population Proportions

- I can estimate the proportion of population data that are in a certain category based on a sample.

Lesson 17: More about Sampling Variability

- I can use the means from many samples to judge how accurate an estimate for the population mean is.

- I know that as the sample size gets bigger, the sample mean is more likely to be close to the population mean.

Lesson 18: Comparing Populations Using Samples

- I can calculate the difference between two medians as a multiple of the interquartile range.

- I can determine whether there is a meaningful difference between two populations based on a sample from each population.

Lesson 19: Comparing Populations With Friends

- I can decide what information I need to know to be able to compare two populations based on a sample from each.

Lesson 20: Memory Test

- I can compare two groups by taking a random sample, calculating important measures, and determining whether the populations are meaningfully different.