Topic 14: Sampling - Study Guide

7.SP.A.2
Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.

7.SP.A.1
Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

For this test, you should be able to:

- Define the following: population, sample, representative sample, biased sample, valid/invalid inference

- Identify which types of surveys and samples who produce a biased sample and which would produce a representative sample.
- Figure out which sample gives best describes the population.

- Estimate with the following formula:

$$Constant\ of\ Proportionality = \frac{\#\ of\ items\ sample}{Sample\ size}$$

$$Estimate\ of\ \#\ of\ items\ in\ population = Constant\ of\ Proportionality \bullet Population\ size$$

- Describe and identify each of the following types of sampling methods
  - Convenience
  - Systematic
  - Simple Random Sample
- Know the steps in collecting a systematic sample:
  - Assign numbers to members
  - Find interval $n = \frac{population}{sample\ size}$
  - Choose starting number between 1 and n
  - Starting at starting number, choose ever nth member of the population.
- Complete the steps of simple random sample
  - Assign numbers to members
  - Randomly generate numbers for the sample
  - Collect sample
- Solve word problems about sampling populations as a wildlife researcher. Using “marked” sample to find population. (14-7)