Consider the population of American households with children under age 10, and the variable "amount spent on breakfast cereal per year". Suppose that his population has a mean of $300 with a standard deviation of $50. You select random samples of size 50 from the population.

1. Describe the 3 different graphs for the following problem:

   Population:

   Sample:

   Sampling Distribution:

2. What is the probability that a randomly selected household spends between $275 and $325 on cereal per year?

3. Describe the sampling distribution of the mean for samples of size 50.

4. What is the probability of obtaining a sample mean that is between $275 and $325?

5. Do either of your answers in #3 and #4 depend on the shape of the population?

6. How can you decrease the variability in the sampling distribution?

7. Why are the conditions of the CLT so important?

Suppose 65% of all married couples own two cars. You select random samples of 50 married couples.

8. Describe the sampling distribution for the proportion of married couples that own two cars.

9. What is the probability that at least 75% of married couples from a sample of 50 own two cars?

10. What values of the sample proportion would you find surprising from a population where 65% of all married couples own two cars?