Be careful about terminology:
1. the population is a collection of individuals
2. identify clearly the variable of interest before determining the parameter
3. the parameter is a number (but unknown)
4. we choose a sample (which has several individuals in it) not samples
5. a proportion is not a probability

Outline
1. Fix a population, a sample size \( (n) \), and a quantitative variable. The quantitative variable has a mean \( \mu \) and a standard deviation \( \sigma \).
2. A new population: all possible samples of a certain size. The variable: \( \bar{x} \).
3. \( \bar{x} \) has a distribution called the sampling distribution of \( \bar{x} \).
4. The mean of the sampling distribution of \( \bar{x} \) is \( \mu \).
5. The standard deviation of the sampling distribution of \( \bar{x} \) is \( \sigma/\sqrt{n} \).
6. The shape of the sampling distribution of \( \bar{x} \) is approximately normal if \( n \) is large (or the distribution of the population variable is approximately normal to begin with).