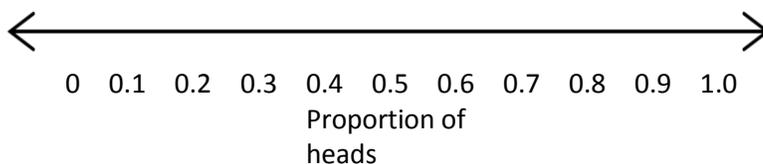




- b. To determine the average wait time in a hospital emergency room, you spend an entire day interviewing every fifth patient treated between 6AM and midnight in the emergency room at Farrlandia General Hospital.
- c. In a survey of hypertension among adults in Farrlandia, Department of Health employees randomly selected 10% of the households in each census tract and went door to door between 9am and 5pm, Monday through Friday, taking blood pressure measurements.
4. Raid your penny jar or pool your pocket change with your classmates and perform the following experiment. Place 30 coins in a bowl. Close your eyes and grab ten coins. Calculate the proportion of heads and plot it on the histogram below. Place the coins back in the bowl, grab another ten, then plot the proportion of heads on the histogram. Repeat a minimum of 20 times, but feel free to do more.
- a. Observe the shape of your histogram. Is it clear where the average sample proportion is? Calculate the standard error around the average sample proportion of heads.



- b. If you conducted this experiment grabbing only six coins at a time, what would be the average sample proportion of heads? What would be the standard error? Compare your results to those in part (a).
5. Consider the research questions below and indicate whether the most efficient sample would be exposed and unexposed, the population at a single point in time, or diseased and not diseased.
- a. Are people with Lyme disease more or less likely to live in rural areas compared to people without Lyme disease?
  - b. Is Type 2 diabetes less common among those who exercise more than 3 hours per week compared to those who exercise less than 1 hour per week?
  - c. Are people who eat canned soup more likely to have elevated levels of bisphenol-A (BPA) compared to people who eat homemade soup?
  - d. Is GPA associated with prevalence of sexually transmitted infections in college freshmen?
  - e. Are women with osteoporosis more likely to have had late onset of menstruation compared to women with healthy bone density?
  - f. Is mood associated with sunlight exposure?
  - g. Does eating 4 oz. red meat per day lead to higher LDL cholesterol compared to eating no red meat?
  - h. Are women who give birth prematurely more likely to have smoked compared to women who give birth at term?
  - i. Are babies who survive car crashes more likely to have been sitting in rear-facing infant car seats compared to babies who do not survive?
  - j. In women age 15 to 24, is alcohol consumption associated with unprotected sex?