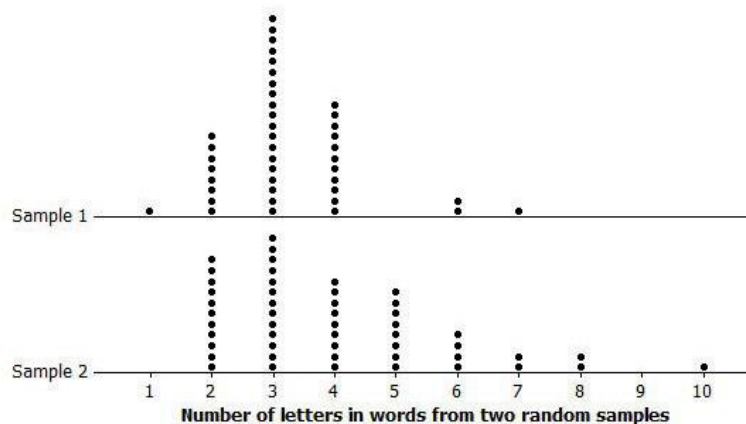


### Problem Set

- Would any of the following provide a random sample of letters used in the text of the book *Harry Potter and the Sorcerer's Stone* by J.K. Rowling? Explain your reasoning.
  - Use the first letter of every word of a randomly chosen paragraph.
  - Number all of the letters in the words in a paragraph of the book, cut out the numbers, and put them in a bag. Then, choose a random set of numbers from the bag to identify which letters you will use.
  - Have a family member or friend write down a list of his favorite words, and count the number of times each of the letters occurs.
- Indicate whether the following are random samples from the given population, and explain why or why not.
  - Population: All students in school; the sample includes every fifth student in the hall outside of class.
  - Population: Students in your class; the sample consists of students who have the letter *s* in their last names.
  - Population: Students in your class; the sample is selected by putting their names in a hat and drawing the sample from the hat.
  - Population: People in your neighborhood; the sample includes those outside in the neighborhood at 6:00 p.m.
  - Population: Everyone in a room; the sample is selected by having everyone toss a coin, and those that result in heads are the sample.
- Consider the two sample distributions of the number of letters in randomly selected words shown below:



- Describe each distribution using statistical terms as much as possible.
  - Do you think the two samples came from the same poem? Why or why not?
- What questions about samples and populations might you want to ask if you saw the following headlines in a newspaper?
    - "Peach Pop is the top flavor according to 8 out of 10 people."
    - "Candidate X looks like a winner! 10 out of 12 people indicate they will vote for Candidate X."
    - "Students overworked. Over half of 400 people surveyed think students spend too many hours on homework."
    - "Action/adventure was selected as the favorite movie type by an overwhelming 75% of those surveyed."