
Cooperative Group Activities

1. In-class activity From the cafeteria, obtain 18 straws. Cut 6 of them in half, cut 6 of them into quarters, and leave the other 6 as they are. There should now be 42 straws of three different lengths. Put them in a bag, mix them up, then select one straw, find its length, and then replace it. Repeat this until 20 straws have been selected. (*Important:* Select the straws without looking into the bag, and select the first straw that you touch.) Find the average (mean) of the lengths of the sample of 20 straws. Now remove all of the straws and find the mean of the lengths of the population. Did the sample provide an average that was close to the true population average (mean)? Why or why not?

2. In-class activity In mid-December of a recent year, the Internet service provider America OnLine (AOL) ran a survey of its users. This question was asked about Christmas trees: "Which do you prefer?" The response could be "a real tree" or "a fake tree." Among the 7073 responses received by the Internet users, 4650 indicated a real tree, and 2423 indicated a fake tree. We have already noted that because the sample is a voluntary response sample, no conclusions can be made about a population larger than the 7073 people who responded. Identify other problems with this survey question.

3. In-class activity Identify the problems with the following:

- A recent report on *CNN Headline News* included a comment that crime in the United States fell in the 1980s because of the growth of abortions in the 1970s, which resulted in fewer unwanted children.
- *Consumer Reports* magazine mailed an Annual Questionnaire about cars and other consumer products. Also included were a request for a voluntary contribution of money and a ballot for the Board of Directors. Responses were to be mailed back in envelopes that required postage stamps.

4. Out-of-class activity Find a report of a survey that is based on a voluntary response sample. Describe how it is quite possible that the results do not accurately reflect the population.

5. Out-of-class activity Find a professional journal with an article that includes a statistical analysis of an experiment. Describe and comment on the design of the experiment. Identify one particular issue, and determine whether the result was found to be statistically significant. Determine whether that same result has practical significance.