

**12. Ecology** When collecting data from different sample locations in a lake, a researcher uses the “line transect method” by stretching a rope across the lake and collecting samples at every interval of 5 meters.

**13. CBS News** The CBS News station in New York City often obtains opinions by interviewing neighbors of a person who is the focus of a news story.

**14. Acupuncture Study** In a study of treatments for back pain, 641 subjects were randomly assigned to the four different treatment groups of individualized acupuncture, standardized acupuncture, simulated acupuncture, and usual care (based on data from “A Randomized Trial Comparing Acupuncture, Simulated Acupuncture, and Usual Care for Chronic Low Back Pain,” by Cherkin et al., *Archives of Internal Medicine*, Vol. 169, No. 9).

**15. Deforestation Rates** Satellites are used to collect sample data used to estimate deforestation rates. The Forest Resources Assessment of the UN Food and Agriculture Organization uses a method of selecting a sample of a 10-km-wide square at every 1° intersection of latitude and longitude.

**16. Dictionary** The author collected sample data by randomly selecting 20 different pages from a printed version of the *Merriam-Webster Dictionary* and then counting the number of defined words on each of those pages.

**17. Testing Lipitor** In a clinical trial of the cholesterol drug Lipitor, subjects were partitioned into groups given a placebo or Lipitor doses of 10 mg, 20 mg, 40 mg, or 80 mg. The subjects were randomly assigned to the different treatment groups (based on data from Pfizer, Inc.).

**18. Exit Polls** On the day of the last presidential election, ABC News organized an exit poll in which specific polling stations were randomly selected and all voters were surveyed as they left the premises.

**19. Literary Digest Poll** In 1936, *Literary Digest* magazine mailed questionnaires to 10 million people and obtained 2,266,566 responses. The responses indicated that Alf Landon would win the presidential election, but Franklin D. Roosevelt actually won the election.

**20. Highway Strength** The New York State Department of Transportation evaluated the quality of the New York State Thruway by testing core samples collected at regular intervals of one mile.

**Simple Random Samples.** In Exercises 21–26, determine whether the sample is a simple random sample. Give a brief explanation of your choice.

**21. Bayer Aspirin** Bayer HealthCare LLC produces low-dose aspirin pills designed to contain 81 mg of aspirin. Because each pill contains other ingredients, including corn starch, talc, and propylene glycol, it is difficult to check whether manufactured pills contain 81 mg of aspirin. A quality control plan is to select every 1000th pill, which is then tested for the correct amount of aspirin.

**22. Market Research** In order to test for a gender gap in the way that men and women purchase cars, the Grant Survey Company polls exactly 750 adult men and 750 adult women randomly selected from adults in the United States.

**23. Post-Election Survey** In the last general election, 132,312 adults voted in Dutchess County, New York. You plan to conduct a post-election survey of 500 of those voters. After obtaining a list of those who voted, you number the list from 1 to 132,312, and then you use a computer to randomly generate 500 numbers between 1 and 132,312. Your sample consists of the voters corresponding to the selected numbers.