

Example 1:

- (b) For the design in part (a), describe how you would assign window types (A and B) to the numbered window boxes.

For each pair listed in (a), flip a coin. If it is heads, the first # will be "A," if it is tails, the first # will be "B." The other number will get whichever type of window the first does not get.

E

Example 2:

- (b) Describe differences and similarities in the hurricane damage amounts among the three regions.

6A2

Florida had the most hurricane damage in 4 of the 5 strata.
(Gulf Coast had more damage 5-10 miles from the coast).

A similarity for all three regions, as expected, the damage decreased as we went farther from the coast, and it was greatest for all 3 regions when we went less than one mile from the coast.

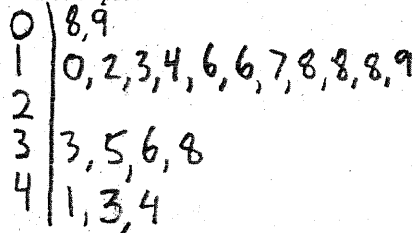
E

Example 3 (2 students) :

1. The Better Business Council of a large city has concluded that students in the city's schools are not learning enough about economics to function in the modern world. These findings were based on test results from a random sample of 20 twelfth-grade students who completed a 46-question multiple-choice test on basic economic concepts. The data set below shows the number of questions that each of the 20 students in the sample answered correctly.

12 16 18 17 18 33 41 44 38 35
19 36 19 13 43 8 16 14 10 9

- (a) Display these data in a stemplot.



- (b) Use your stemplot from part (a) to describe the main features of this score distribution.

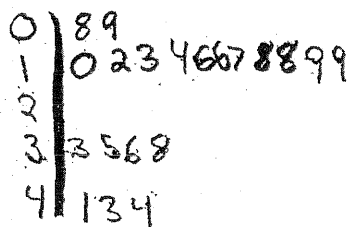
The lapse of scores in the 20's suggest that the distribution is bi-modal. In addition, the distribution seems skew right (although a graph would more clearly show this.)

E

1. The Better Business Council of a large city has concluded that students in the city's schools are not learning enough about economics to function in the modern world. These findings were based on test results from a random sample of 20 twelfth-grade students who completed a 46-question multiple-choice test on basic economic concepts. The data set below shows the number of questions that each of the 20 students in the sample answered correctly.

12 16 18 17 18 33 41 44 38 35
19 36 19 13 43 8 16 14 10 9

- (a) Display these data in a stemplot.



- (b) Use your stemplot from part (a) to describe the main features of this score distribution.

This score distribution is skewed to the right with a center at approximately 18 with scores ranging from 8-44, most of the scores tend to be in the teens. There are no scores in the 20's.

E

Example 4 (2 students):

- (c) The company is concerned that a simple random sample of 2,000 owners would include fewer than 12 owners of model D or fewer than 12 owners of model E. Briefly describe a sampling method for randomly selecting 2,000 owners that will ensure at least 12 owners will be selected for each of the 5 car models.

If you separated the list of new car owners by model, and then you randomly chose 400 owners from each of the groups of the different models, then you would be guaranteed 400 owners of each of the different models

E

- (c) The company is concerned that a simple random sample of 2,000 owners would include fewer than 12 owners of model D or fewer than 12 owners of model E. Briefly describe a sampling method for randomly selecting 2,000 owners that will ensure at least 12 owners will be selected for each of the 5 car models.

Use a stratified random sample.

$$E(A) = 2000 \times 0.378 = 756$$

$$E(B) = 2000 \times 0.323 = 646$$

$$E(C) = 2000 \times 0.2799 = 560$$

$$E(D) = 2000 \times 0.011 = 22$$

$$E(E) = 2000 \times 0.00781 = 16$$

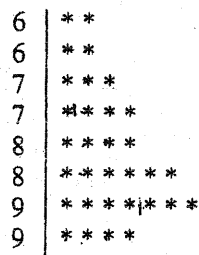
Score: E

Randomly pick 756 from A, 646 from B, 560 from C, 22 from D and 16 from E. This way, the proportion would be represented as well as more than 12 people will be selected from D and E.

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Example 5 :

1. The graph below displays the scores of 32 students on a recent exam. Scores on this exam ranged from 64 to 95 points.



- (a) Describe the shape of this distribution.

The distribution is spread from 64-95.

It is slightly skewed to the left.

The median is between 85 and 89.

The IQR goes from around 75-79 up to 90-94

E

Example 6 (2 students):

- (a) Describe a method for assigning the 24 students to two groups of equal size that allows for a statistically valid comparison of the two instructional programs.

Number students according to an alphabetical list.

~~000000~~ 00-23; skip 24-99. Use table of random digits
NO REPEATS! to assign the first 12 chosen to go to test 1
(actual dissection) and whoever is left over goes to
test 2 (computer)

E

- (a) Describe a method for assigning the 24 students to two groups of equal size that allows for a statistically valid comparison of the two instructional programs.

Give each student a number, 01, 02, 03... 24

Then use a random digit table or a random digit generator to generate digits. The first 12 digits chosen will be assigned to dissect the frog, and the 12 leftover will use the computer program.

E