Lesson 1-3

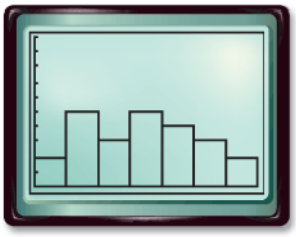
Example 1

TECHNOLOGY Use a graphing utility to display the data below in a histogram. For each bar, name the interval and its frequency.

14	20	62	47	16	35	33	44	35	21	57	42
38	57	18	7	23	51	60	3	40	32	19	12

Solution

Enter the data into a list, L1. Choose histogram in the statistic plot menu. Set the viewing window.



x min = 0	x max = 70	x scale = 10
y min = 0	y max = 10	y scale = 1

Intervals and frequencies:

0 to 9, 2	10 to 19, 5	20 to 29, 3
30 to 39, 5	40 to 49, 4	50 to 59, 3
60 to 69, 2		

Example 2

SURVEY The ages of people who participated in a recent survey are shown in the frequency table.

Age	Frequency
5 – 14	6
15 – 24	13
25 – 34	18
35 – 44	17
45 – 54	14
55 – 64	9

a. Make a histogram of the data. Title the histogram.

b. How many participants were between the ages of 45 and 54?

c. How many participants were no older than 24 years?

d. Between which two consecutive intervals does the greatest increase in frequency occur? What is the increase?

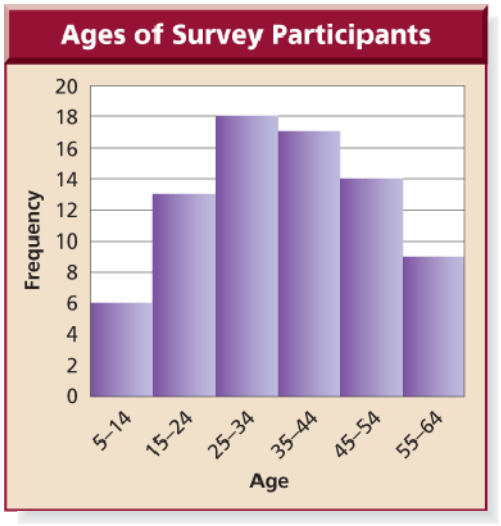
Solution

a. Write the same intervals used in the frequency table as the horizontal axis. Label the vertical axis with a scale that includes the frequency numbers from the table.

b. There were 14 survey participants between the ages of 45 and 54.

c. Add the number of students ages 5–14 and ages 15–24. There were 6 + 13 = 19 participants no older than 24.

d. The greatest increase is between intervals 5–14 and 15–24. These frequencies are 6 and 13, so the increase is 13 - 6 = 7.



Example 3

EDUCATION The stem-and-leaf plot shows the class results on a 60-question test. Find the following:

Class Test Results

1	5
4	2 4 5 5 6 8
5	0 3 4 4 4 7 7 9
6	0 0

4|2 = 42 correct answers

a. possible outliers, clusters and gaps

b. median **c.** mode **d.** range

Solution

a. Since 15 is much lower than the other data, it is a possible outlier. Clusters of data are in the low to middle 40s and the mid to upper 50s. The greatest gap occurs between the outlier and the rest of the data.

b. The median is the middle score on the test, 5|3 or 53.

c. The mode is 5|4, or 54 correct answers.

d. The range is the difference between 6|0 and 1|5. The range is 45 correct answers.

Example 4

Display the data in a stem-and-leaf plot. Include a key that explains the plot.

a. Pages read each night: 15, 11, 20, 22, 28, 16, 19

b. Prices of microwave ovens: $95, $102, $115, $112, $99, $108, $102, $114, $92, $96

Solution

a. Use 1 and 2 for the stems.

Pages Read

1	1 5 6 9
2	0 2 8

1|1 represents 11 pages

b. Use 9, 10, and 11 for the stems.

Prices of Microwaves

9	2 5 6 9
10	2 2 8
11	2 4 5

9|5 represents $95