



Stem and Leaf Plots

Answers

A stem-and-leaf plot is a display that organizes data to show its shape and distribution.

In a stem-and-leaf plot each data value is split into a "stem" and a "leaf". The "leaf" is usually the last digit of the number and the other digits to the left of the "leaf" form the "stem". The number 123 would be split as:

stem	12
leaf	3

Constructing a stem-and-leaf plot:

Example:

Math test scores out of 50 points:

35, 36, 38, 40, 42, 42, 44, 45, 45, 47, 48, 49, 50, 50, 50.

Writing the data in numerical order may help to organize the data.	35, 36, 38, 40, 42, 42, 44, 45, 45, 47, 48, 49, 50, 50, 50										
Separate each number into a stem and a leaf. Since these are two digit numbers, the tens digit is the stem and the units digit is the leaf.	<p>The number 38 would be represented as</p> <table> <tr> <th>Stem</th><th>Leaf</th></tr> <tr> <td>3</td><td>8</td></tr> </table>	Stem	Leaf	3	8						
Stem	Leaf										
3	8										
<p>Group the numbers with the same stems. List the stems in numerical order. (If your leaf values are not in increasing order, order them now.) Title the graph.</p> <p>Complete the stem and leaf table on the right</p>	<table> <tr> <th colspan="2">Math Test Scores (out of 50 pts)</th></tr> <tr> <th>Stem</th><th>Leaf</th></tr> <tr> <td>3</td><td>5 6 8</td></tr> <tr> <td>4</td><td>0 2 2 4 5 5 7 8 9</td></tr> <tr> <td>5</td><td>0 0 0</td></tr> </table>	Math Test Scores (out of 50 pts)		Stem	Leaf	3	5 6 8	4	0 2 2 4 5 5 7 8 9	5	0 0 0
Math Test Scores (out of 50 pts)											
Stem	Leaf										
3	5 6 8										
4	0 2 2 4 5 5 7 8 9										
5	0 0 0										
Prepare an appropriate legend (key) for the graph.	Legend: 3 6 means 36										

A stem-and-leaf plot shows the shape and distribution of data. It can be clearly seen in the diagram above that the data clusters around the row with a stem of 4.

Notes

- The leaf is the digit in the place farthest to the right in the number, and the stem is the digit, or digits, in the number that remain when the leaf is dropped.
- To show a one-digit number (such as 9) using a stem-and-leaf plot, use a stem of 0 and a leaf of 9.
- To find the median in a stem-and-leaf plot, count off half the total number of leaves.

1) Test scores for a class of 23 students are as follows:

93, 84, 97, 98, 100, 78, 86, 100, 78, 86, 100, 85, 92, 72, 55, 91, 90, 75, 94, 83, 60, 81, 95.

Create a stem-and-leaf plot to represent the data.

Using the stem and leaf plot,

Find the median: 86

Find the mode: 100

Find the range: 45

$$\begin{array}{r} 100 \\ - 55 \\ \hline 45 \end{array}$$

Test Scores

Stem	Leaf
5	5
6	0
7	2 5 8 8
8	1 3 4 5 6 6
9	0 ^L 1 2 3 4 5 7 8
10	0 0 0

Legend or key: 7|2 = 72

2) Subjects in a psychological study were timed while completing a certain task. Complete a stem-and-leaf plot for the following list of times:

7.6, 8.1, 9.2, 6.8, 5.9, 6.2, 6.1, 5.8, 7.3, 8.1, 8.7, 7.4, 7.8, 8.2

- Find the median

7.4

- Find the mode

8.1

- Find the range

3.4

stem	leaf
5	8 9
6	1 2 8
7	3 4 6 8
8	1 1 2 7
9	2

key 7|6 = 7.6

3) This stem-and-leaf plot shows grades that students received on a math quiz.

- a. How many students scored at least 92 on the math quiz?

6

- b. List the top 3 scores

100, 99, 98

- c. Is there an outlier? If there is, which score is it?

31

Stem	Leaves
3	1
4	
5	
6	6 2 7
7	0 5
8	3 2 9 5 7 0
9	2 8 4 1 6 9
10	0

key: 3/1 means 31