

Probability and Statistics

Lesson: April 7

Students will be able to create a stem and leaf plot from a set of data or be able to interpret the data presented in a stem and leaf plot

Below is a Stem-and-Leaf Graph

stem	leaf
0	1, 1, 2, 2, 3, 4, 4, 4, 4, 5, 8
1	0, 0, 0, 1, 1, 3, 7, 9
2	5, 5, 7, 7, 8, 8, 9, 9
3	0, 1, 1, 1, 2, 2, 2, 4, 5
4	0, 4, 8, 9
5	2, 6, 7, 7, 8
6	3, 6

Key: 6|3 = 63 years old

Can you figure out what the original data numbers were? (see page 8)

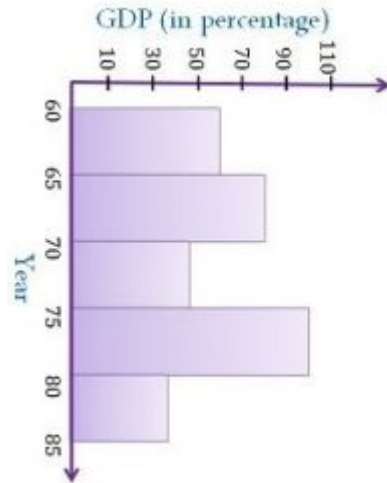
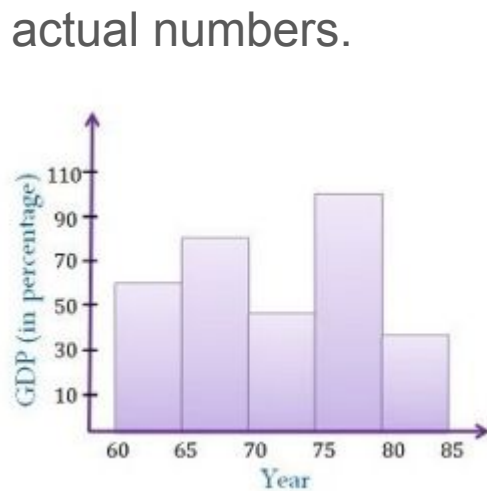
Could you find the mean, median, mode and range? (see page 10)

Could you find the interquartile range? (see page 12)

Can you answer other questions about the data? (see page 14)

Stem and Leaf is another way to organize your data into a nice visual representation that is easy to read.

Imagine if you took a histogram and turned it sideways. It would look very similar to the stem and leaf. The main difference is that with a histogram you know how many numbers are represented in a bar but with a stem and leaf you know the actual numbers.



stem	leaf
0	1, 1, 2, 2, 3, 4, 4, 4, 4, 5, 8
1	0, 0, 0, 1, 1, 3, 7, 9
2	5, 5, 7, 7, 8, 8, 9, 9
3	0, 1, 1, 1, 2, 2, 2, 4, 5
4	0, 4, 8, 9
5	2, 6, 7, 7, 8
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What makes the stem? What makes the leaf?

The digit in the “tens” position is typically the stem and the digit in the last place to the right or the “ones” position is typically the leaf.

For instance, the number 36, the stem would be 3 and the leaf would be 6.

The Stem can be more than one digit but the leaf can only be one digit.

For instance, in the number 107, the stem would be 10 and the leaf would be 7.

Stem and leaf can also be used for decimals

For instance, in the number 5.4, the stem would be 5 and the leaf would be 4.

Quick Check:

What is the stem and what is the leaf for each of these numbers?

1. 24
2. 75
3. 117
4. 10
5. 6.1
6. 3
7. 2.3
8. 125

Quick Check: ANSWERS

What is the stem and what is the leaf for each of these numbers?

- | | | | |
|----|-----|----------|---------|
| 1. | 24 | Stem: 2 | Leaf: 4 |
| 2. | 75 | Stem: 7 | Leaf: 5 |
| 3. | 117 | Stem: 11 | Leaf: 7 |
| 4. | 10 | Stem: 1 | Leaf: 0 |
| 5. | 6.1 | Stem: 6 | Leaf: 1 |
| 6. | 3 | Stem: 0 | Leaf: 3 |
| 7. | 2.3 | Stem: 2 | Leaf: 3 |
| 8. | 125 | Stem: 12 | Leaf: 5 |

Using the following stem and leaf, can you list the data points?

stem	leaf
0	1, 1, 2, 2, 3, 4, 4, 4, 4, 5, 8
1	0, 0, 0, 1, 1, 3, 7, 9
2	5, 5, 7, 7, 8, 8, 9, 9
3	0, 1, 1, 1, 2, 2, 2, 4, 5
4	0, 4, 8, 9
5	2, 6, 7, 7, 8
6	3, 6

Key: 6|3 = 63 years old

Using the following stem and leaf, can you list the data points?

1, 1, 2, 2, 3, 4, 4, 4, 4, 5, 8

10, 10, 10, 11, 11, 13, 17, 19

25, 25, 27, 27, 28, 28, 29, 29

30, 31, 31, 31, 32, 32, 32, 34, 35

40, 44, 48, 49

52, 56, 57, 57, 58

63, 66

stem	leaf
0	1, 1, 2, 2, 3, 4, 4, 4, 4, 5, 8
1	0, 0, 0, 1, 1, 3, 7, 9
2	5, 5, 7, 7, 8, 8, 9, 9
3	0, 1, 1, 1, 2, 2, 2, 4, 5
4	0, 4, 8, 9
5	2, 6, 7, 7, 8
6	3, 6

Key: 6|3 = 63 years old

From this graph we can answer all of the beginning questions:

1, 1, 2, 2, 3, 4, 4, 4, 4, 5, 8

10, 10, 10, 11, 11, 13, 17, 19

25, 25, 27, 27, 28, 28, 29, 29

30, 31, 31, 31, 32, 32, 32, 34, 35

40, 44, 48, 49

52, 56, 57, 57, 58

63, 66

How many numbers?

Mean: add up all of the numbers and divide by 47

Median: which number is in the middle
47 numbers so the middle number is the 24th number

Mode: which number is in the data set the most times

Range: largest number - smallest number

From this graph we can answer all of the beginning questions:

1, 1, 2, 2, 3, 4, 4, 4, 4, 5, 8

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25, 25, 27, 27, 28, 28, 29, 29

30, 31, 31, 31, 32, 32, 32, 34, 35

40, 44, 48, 49

52, 56, 57, 57, 58

63, 66

How many numbers? 47

Mean: add up all of the numbers and divide by 47

$1235 \div 47 = 26.28$ (rounded)

Median: which number is in the middle

47 numbers so the middle number is the 24th number

28 is the middle

Mode: which number is in the data set the most times

4 (in the set 4 times)

Range: largest number - smallest number

$66 - 1 = 65$

From this graph we can answer all of the beginning questions:

1, 1, 2, 2, 3, 4, 4, 4, 4, 5, 8

10, 10, 10, 11, 11, 13, 17, 19

25, 25, 27, 27, 28, 28, 29, 29

30, 31, 31, 31, 32, 32, 32, 34, 35

40, 44, 48, 49

52, 56, 57, 57, 58

63, 66

Interquartile Range: this one requires finding Q1 and Q3 first

Q1: 23 numbers on the low side of the median so the 12th number is the Q1

Q3: 23 numbers on the high side of the median so the 12th number from the median is Q3

Q3 - Q1 = Interquartile Range

From this graph we can answer all of the beginning questions:

1, 1, 2, 2, 3, 4, 4, 4, 4, 5, 8

10, 10, 10, 11, 11, 13, 17, 19

25, 25, 27, 27, 28, 28, 29, 29

30, 31, 31, 31, 32, 32, 32, 34, 35

40, 44, 48, 49

52, 56, 57, 57, 58

63, 66

Interquartile Range: this one requires finding Q1 and Q3 first

Q1: 23 numbers on the low side of the median so the 12th number is the Q1

10

Q3: 23 numbers on the high side of the median so the 12th number from the median is Q3

35

Q3 - Q1 = Interquartile Range

35 - 10 = 25 IQR

To create your own stem and leaf from a given set of numbers you can watch this short video

<https://www.youtube.com/watch?v=MUCvUgGfzdo>

Please remember, as he demonstrates in the video, you always want to make a KEY:

KEY

$6 | 4 = 64$ or $10 | 3 = 103$ or $7 | 2 = 7.2$

What other questions could you answer from a stem and leaf?

Click on this link to practice some other commonly asked questions about a stem and leaf set of data.

[Stem and Leaf Practice 1](#)

[Stem and Leaf Practice 2](#)