Stem-and-Leaf Plots

Statistics Worksheet · Grades 6–9

Name: _____ Date: _____

Learning Objectives

- Identify the stem and leaf components of a data value
- Construct and read stem-and-leaf plots from ungrouped data sets
- Interpret and analyze the distribution of data displayed in a stem-and-leaf plot

Problems

1. For the number 85, identify the stem and the leaf.

85

2. For each number in the list below, write its stem and leaf. The numbers are: 34, 47, 52, 61, 78.

34, 47, 52, 61, 78

3. Use the stem-and-leaf plot below to list all the data values it represents.

Student Quiz Scores

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

Key: 5|3 = 53

4. The ages of participants in a community event are: 22, 25, 31, 34, 34, 38, 41, 45. Construct a stem-and-leaf plot for this data.

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Ages of Participants

Stem	Leaves
2	
3	
4	

Key: 2|2 = 22

5. Look at the completed stem-and-leaf plot below and answer: How many data values are in this data set, and what is the greatest value shown?

Points Scored Per Game

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

Key: 6|3 = 63

6. The following scores were recorded on a math test: 88, 76, 95, 62, 71, 83, 99, 74, 90, 65, 87, 78. Construct a stem-and-leaf plot, then arrange the leaves in increasing order.

Math Test Scores

Stem	Leaves
6	
7	
8	
9	

Key: 6|2 = 62

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7. Use the stem-and-leaf plot below to fill in the frequency table showing how many values fall in each stem group.

Stem (Tens)	Number of Values (Frequency)
5	
6	
7	
8	
9	

8. The hourly wages (in dollars) of 12 part-time workers are: 9, 11, 14, 9, 12, 17, 15, 10, 13, 18, 11, 16. Construct an ordered stem-and-leaf plot, then state the median wage.

Hourly Wages of Part-Time Workers

Stem	Leaves
0	
1	

Key: 0\|9 = $9

9. The stem-and-leaf plot below shows the number of points a team scored each game over two seasons. Season A is on the left and Season B is on the right. Compare the two seasons: which season had a higher median score and which had more consistent (less spread out) scores?

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Back-to-Back: Season A (left) vs Season B (right)

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

Key: Season A: 2\|6 = 62 | Season B: 6\|8 = 68

10. A teacher recorded the following final exam scores for two classes. Class 1: 55, 62, 68, 71, 73, 74, 78, 82, 85, 89, 91, 95. Class 2: 60, 63, 65, 70, 72, 76, 79, 81, 84, 88, 92, 97. Construct an ordered stem-and-leaf plot for each class, then calculate the mean, median, and mode for each class and compare their distributions. Which class performed better overall?

Class 1 (left) vs Class 2 (right) — Final Exam Scores

Stem	Leaves
5	
6	
7	
8	
9	

Key: Class 1: leaf\|stem | Class 2: stem\|leaf

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Stem-and-Leaf Plots — Answer Key

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Answer Key

1. Answer: Stem: 8, Leaf: 5

- The stem is the first (tens) digit: 8
- The leaf is the remaining (units) digit: 5

2. Answer: 34→stem 3, leaf 4; 47→stem 4, leaf 7; 52→stem 5, leaf 2; 61→stem 6, leaf 1; 78→stem 7, leaf 8

- The tens digit is the stem and the units digit is the leaf for each value.
- 34: stem 3, leaf 4 | 47: stem 4, leaf 7 | 52: stem 5, leaf 2 | 61: stem 6, leaf 1 | 78: stem 7, leaf 8

3. Answer: 53, 57, 60, 64, 68, 71, 75, 82

Student Quiz Scores

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

Key: 5\|3 = 53

- Combine each stem with each of its leaves to form the original values.
- Stem 5: 53, 57 | Stem 6: 60, 64, 68 | Stem 7: 71, 75 | Stem 8: 82

4. Answer: Stem 2: 2 5 | Stem 3: 1 4 4 8 | Stem 4: 1 5

Ages of Participants

Stem	Leaves
2	
3	
4	

Key: 2\|2 = 22

- Identify stems from the tens digits: 2, 3, 4.

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- Place the units digit of each value as a leaf next to its stem.
- Stem 2: 2, 5 | Stem 3: 1, 4, 4, 8 | Stem 4: 1, 5

5. Answer: 12 data values; greatest value is 97

Points Scored Per Game

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

Key: 6\|3 = 63

- Count all leaves: 3 + 4 + 2 + 3 = 12 data values.
- The greatest stem is 9 and its largest leaf is 7, giving 97.

6. Answer: Stem 6: 2 5 | Stem 7: 1 4 6 8 | Stem 8: 3 7 8 | Stem 9: 0 5 9

Math Test Scores

Stem	Leaves
6	
7	
8	
9	

Key: 6\|2 = 62

- Identify stems: 6, 7, 8, 9.
- Assign leaves: 62→2, 65→5 | 76→6, 71→1, 74→4, 78→8 | 88→8, 83→3, 87→7 | 95→5, 99→9, 90→0.
- Arrange leaves in increasing order: Stem 6: 2 5 | Stem 7: 1 4 6 8 | Stem 8: 3 7 8 | Stem 9: 0 5 9

7. Answer: Stem 5: 1, Stem 6: 2, Stem 7: 3, Stem 8: 4, Stem 9: 3

Stem (Tens)	Number of Values (Frequency)
5	1
6	2
7	3

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Stem (Tens)	Number of Values (Frequency)
8	4
9	3

- Count the number of leaves for each stem.
- Stem 5: 1 leaf | Stem 6: 2 leaves | Stem 7: 3 leaves | Stem 8: 4 leaves | Stem 9: 3 leaves

8. Answer: Stem 0: 9 9 | Stem 1: 0 1 1 2 3 4 5 6 7 8; Median = $13.50

Hourly Wages of Part-Time Workers

Stem	Leaves
0	
1	

Key: 0\|9 = $9

- Stems are 0 (for single-digit values 9, 9) and 1 (for values 10–18).
- Ordered plot — Stem 0: 9, 9 | Stem 1: 0, 1, 1, 2, 3, 4, 5, 6, 7, 8
- List all 12 values in order: 9, 9, 10, 11, 11, 12, 13, 14, 15, 16, 17, 18
- Median is the average of the 6th and 7th values: (12 + 13) ÷ 2 = 13.50

9. Answer: Season B has a higher median; Season A has less spread (scores clustered in 70s)

Back-to-Back: Season A (left) vs Season B (right)

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

Key: Season A: 2\|6 = 62 | Season B: 6\|8 = 68

- Season A values (left leaves read right to left from stem): 62, 65, 68, 71, 74, 77, 79, 83, 86, 91, 94
- Season B values (right leaves): 68, 76, 78, 81, 83, 89, 91, 94 (use the given leaves on the right side of each stem).
- Compare medians and the range of each season to determine which is more consistent.
- Season B scores extend more into the 80s and 90s, giving a higher median; Season A scores cluster more in the 60s–70s showing less spread.

10. Answer: Class 1 mean ≈ 76.9, median = 78, no mode; Class 2 mean ≈ 77.3, median = 77.5, no mode; Class 2 performed slightly better overall.

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Class 1 (left) vs Class 2 (right) — Final Exam Scores

Stem	Leaves
5	
6	
7	
8	
9	

Key: Class 1: leaf\|stem | Class 2: stem\|leaf

• Order each class's data and build the back-to-back stem-and-leaf plot with stems 5–9.
• Class 1 — Stem 5: 5 | Stem 6: 2 8 | Stem 7: 1 3 4 8 | Stem 8: 2 5 9 | Stem 9: 1 5
• Class 2 — Stem 6: 0 3 5 | Stem 7: 0 2 6 9 | Stem 8: 1 4 8 | Stem 9: 2 7
• Class 1: sum = 923, mean = 923÷12 ≈ 76.9; median = (78+78)÷2 = 78; no repeating value → no mode.
• Class 2: sum = 927, mean = 927÷12 ≈ 77.3; median = (76+79)÷2 = 77.5; no repeating value → no mode.
• Class 2 has a slightly higher mean and its scores are more concentrated in the 70s–90s, suggesting slightly better overall performance.

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