

# Extend Stem-and-Leaf Plots

## Main Idea

Display and analyze data in a stem-and-leaf plot.

abc

## Vocabulary

stem-and-leaf plot  
leaves  
stems  
back-to-back stem-and-leaf plot



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In a **stem-and-leaf plot**, the data are ordered from least to greatest and organized by place value. The digits of the least place-value position form the **leaves**. The next higher place-value digits form the **stems**.



## ACTIVITY

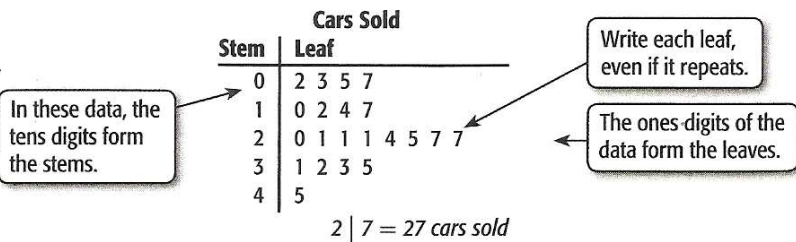
**1 CARS** A dealership kept track of the number of cars sold each day for several weeks. Construct a stem-and-leaf plot of the data.

Cars Sold						
35	21	14	32	25	10	5
27	12	33	20	45	21	31
17	24	21	27	2	3	7

**STEP 1** Order the data from least to greatest.

**STEP 2** Draw a vertical line and write the tens digits from least to greatest to the left of the line. These digits form the stems. Since the least value is 2 and the greatest value is 45, the stems are 0, 1, 2, 3, and 4.

**STEP 3** Write the ones digits in order to the right of the line with the corresponding stem. These digits form the leaves.



**STEP 4** Include a key that explains the stems and leaves.

## Analyze the Results

1. Explain how to find the median and mode for the number of car sales. What is the median number of car sales? the mode?
2. Make a stem-and-leaf plot of the number of minutes Marty spends on his homework each night: 37, 28, 25, 29, 31, 45, 32, 31, 46, 39.
3. **WRITE MATH** Describe an advantage of displaying a set of data in a stem-and-leaf plot instead of a bar or a line graph.

A **back-to-back stem-and-leaf plot** can be used to compare two sets of data. The leaves for one set of data are on one side of the stem and the leaves for the other set of data are on the other side of the stem.

### ACTIVITY

- 2 Construct a back-to-back stem-and-leaf plot of the data in the table at the right.

**STEP 1** Order both sets of data from least to greatest.

**STEP 2** Draw two vertical lines and write the beginning digits from least to greatest between the two lines. Since the least value is 68 and the greatest value is 100, the stems are 6, 7, 8, 9, and 10.

**STEP 3** Write the ones digits for Kelsey's test scores to the left of the line. Start at the stem and increase as you move left. Write the ones digits for Tammy's test scores in order to the right for the corresponding stem.

**STEP 4** Include a key for both sides that explains the stems and leaves.

Kelsey's Science Test Scores		Tammy's Science Test Scores	
68	100	93	85
86	76	100	78
89	93	99	85
91	97	75	83



Kelsey's Test Scores	Stem	Tammy's Test Scores
8	6	
6	7	5 8
9 6	8	3 5 5
7 3 1	9	3 9
0	10	0
8   6 = 68%		7   5 = 75%

## Analyze the Results

- For how many science tests did Kelsey receive an 86% or above?
- Who received the lowest score on the science tests?
- Write a few sentences comparing the science test scores for each student.

## Practice and Apply

Make a back-to-back stem-and-leaf plot of each set of data. Then compare the median and range.

- Bus ride in minutes: 24, 14, 25, 28, 47, 13, 9, 17, 30, 35, 16, 39  
Car ride in minutes: 17, 18, 12, 23, 32, 36, 20, 11, 41, 25, 26, 29
- Beth's video game scores: 53, 64, 15, 22, 16, 42, 12, 38, 68, 63, 23, 35, 30, 33, 34, 35  
Anne's video game scores: 61, 52, 36, 35, 27, 40, 21, 25, 53, 48, 22, 29, 34, 28, 45, 38
- Construct a back-to-back stem-and-leaf plot of the data in the table at the right.
- How many games were there in which the Tigers scored more than 75 points? the Eagles? Write a few sentences comparing the data.

Tigers Points Scored			Eagles Points Scored		
66	77	54	50	62	75
78	80	65	70	54	53
86	70	52	58	67	82
88	58	74	72	58	66

