

# HISTOGRAMS AND STEM-AND-LEAF PLOTS

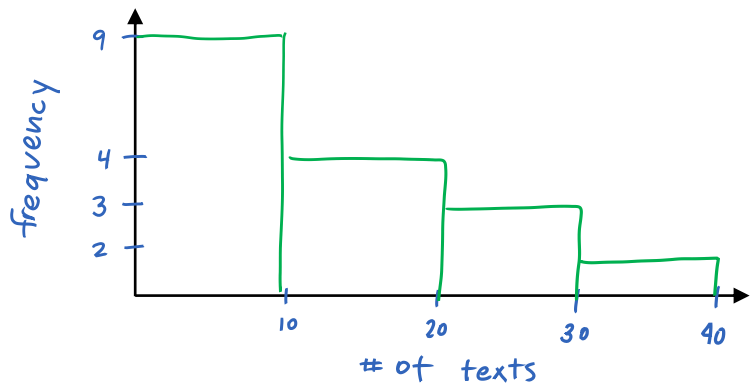
## REMINDEERS ABOUT FREQUENCY TABLES & HISTOGRAMS

- Used for **QUANTITATIVE** data only
- “Bins” or intervals must be **UNIFORM** in size
- Bins are made to **OVERLAP** (i.e., 0-2, 2-4, 4-6 ... )
- Bins must **NOT** have any gaps between them, unless there is no data in that interval
- If a score lies **BETWEEN** two bins, it **ALWAYS** goes into the **LARGER** bin (the bin to the right)

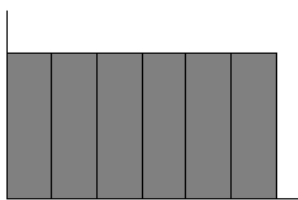
**LET'S PRACTICE ONE TOGETHER.** The number of text messages sent on one day by different students are shown below. Make a frequency table and histogram that represents the data. Be sure to label the graph and your axes.

17 3 1 30 11 7 1 5 2 39 22 13 2 0 21 1 29 19

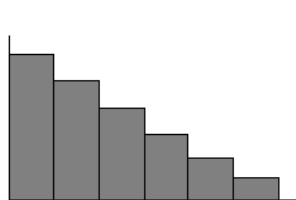
Intervals	Frequency
0 - 10	9
10 - 20	4
20 - 30	3
30 - 40	2



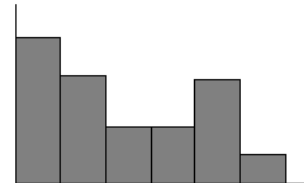
**DATA DISTRIBUTION** (Describes the shape of a histogram or a bar chart)



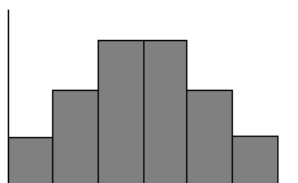
Uniform & symmetrical



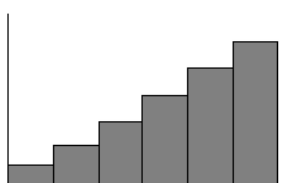
Skewed right



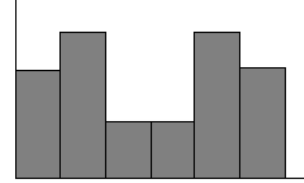
Bimodal & skewed right



Symmetrical



Skewed left



Bimodal & symmetrical

Describe the distribution of the text message histogram we created above. skewed right

**STEM-AND-LEAF PLOT:** a table where each NUMERICAL value is split into 2 parts (first digit(s)  $\Rightarrow$  stem; last digit (only 1)  $\Rightarrow$  Leaf)

**Example 1:**

The numbers of students in 14 math classes at Hinsdale Central are given below. Use the data to make a stem-and-leaf plot and describe the shape of the distribution.

24, 14, 12, 25, 32, 18, 23, 24, 9, 18, 34, 28, 24, 27

MATH CLASS SIZE	
Stem	Leaf
0	9
1	2 4 8 8
2	3 4 4 4 5 7 8
3	2 4

Key:  $1|2 = 12$  students

**Partner Practice!**

Included below is the stem-and-leaf plot that illustrates the number of miles driven by each new car parked in a lot.

- How many cars have over 50 miles? 2
- How many cars have less than 50 miles? 14
- How many total cars were checked for mileage? 16
- What is the most miles on a car? Lowest mileage? 56, 12

**New Car Mileage**

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

Key:  $1|2$  means 12

**Example 2:**

The number of Snapchats that were sent between two friends over the last year were recorded below (broken down by month). Use the data to make a double stem-and-leaf plot.

Chandler: 97, 110, 84, 72, 95, 108, 101, 88, 95, 104, 79, 100  
 Joey: 81, 102, 94, 95, 83, 107, 90, 88, 93, 99, 101, 96

**# OF SNAPCHATS SENT IN MARCH**

Chandler	#	Joey
	7	2 9
8 3 1	8	4 8
9 6 5 4 3 0	9	5 5 7
7 2 1	10	0 1 4 8
	11	0

Key:  $0|9 = 90$  snaps

Key:  $11|0 = 110$  snaps