

SHAPE, CENTER, AND SPREAD OF DATA *notes*

shape of data - tells us how the data is _____

center of data - gives us the _____ of the data set

*can be found by mean or median

spread of data - tells how _____ or _____ the data set is

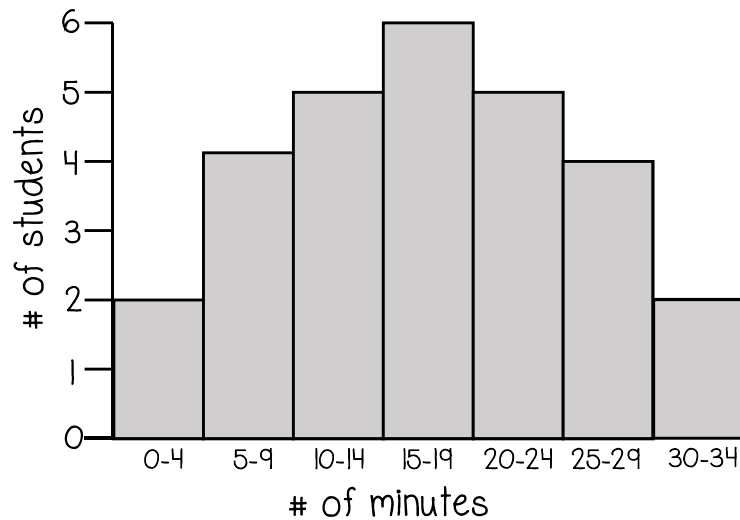
*can be found by range, interquartile range, mean absolute deviation, or standard deviation

peak - point where the data is _____ than the other parts of the data set

*can be found by mode

*one peak = _____ *two peaks = _____ *multiple peaks = _____ *no peaks = _____

Example: Students were surveyed on how many minutes they spend reading each night.



How would you describe the shape of the data?

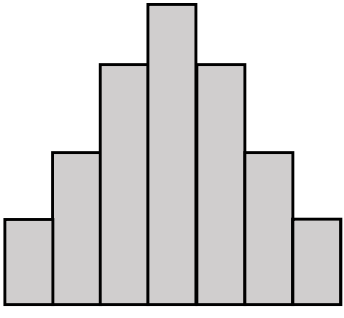
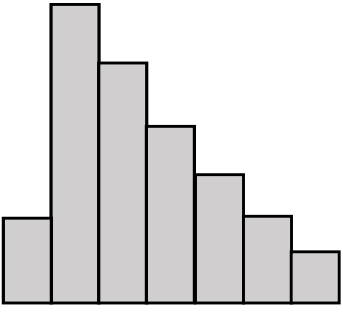
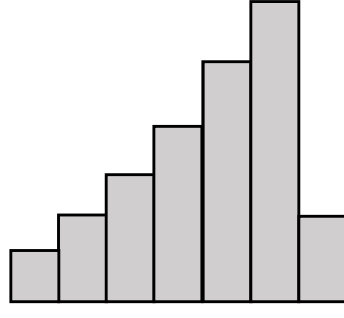
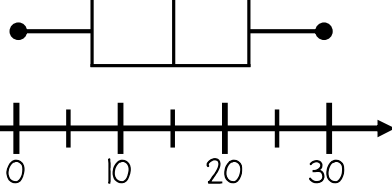
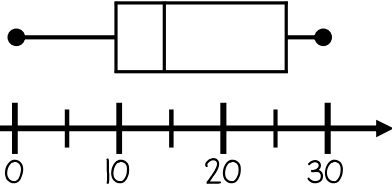
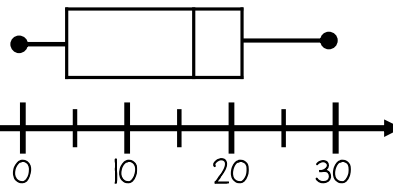
How many peaks does the graph have?

Estimate the center (mean or median) of this data set.

How would you describe the spread of data?

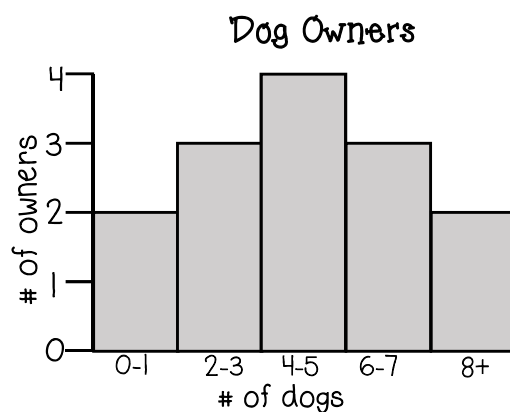
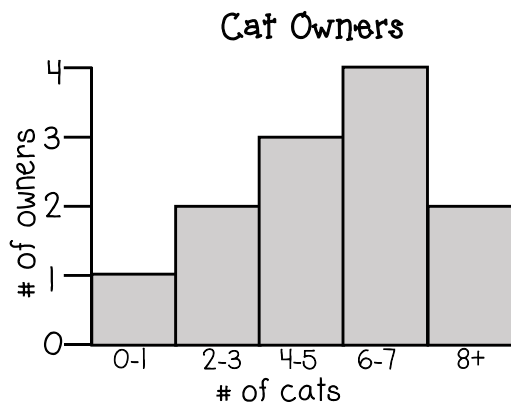
SHAPE OF DATA notes continued

Data sets can be categorized by how they are _____. Here are 3 possible shapes of a data set.

SYMMETRIC	SKEWED RIGHT	SKEWED LEFT
		
		
<ul style="list-style-type: none"> • bell-shaped • mean and median are the same or very close 	<ul style="list-style-type: none"> • positive skew • mean > median • long tail on right • also called positive skew 	<ul style="list-style-type: none"> • negative skew • mean < median • long tail on left • also called negative skew

Comparing Data Sets

People were asked if they owned cats or dogs. The data is organized into the two histograms below.

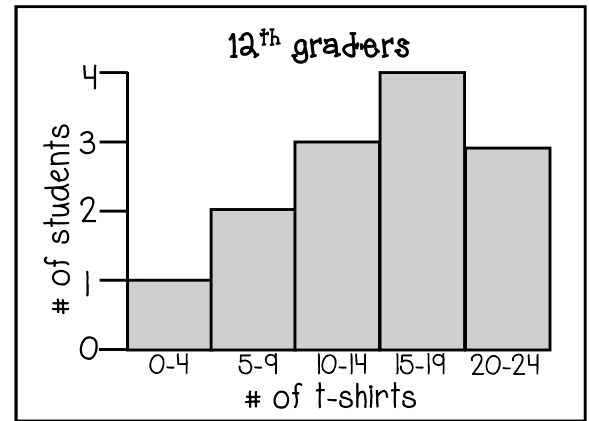
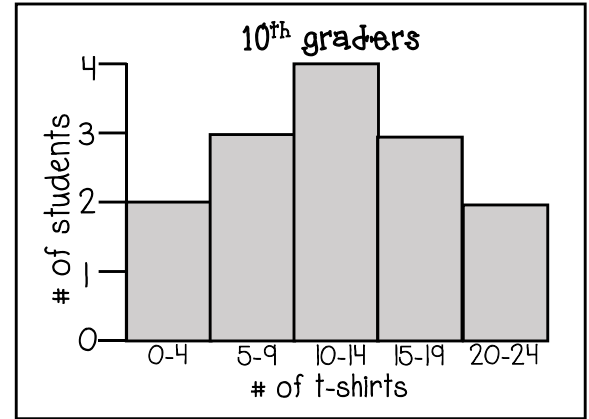


1. What is the shape for the cat owner histogram?
2. What is the shape of the dog owner histogram?
3. How do the spread of the two data sets compare?
4. How do their peaks compare?

SHAPE, CENTER, AND SPREAD *practice*

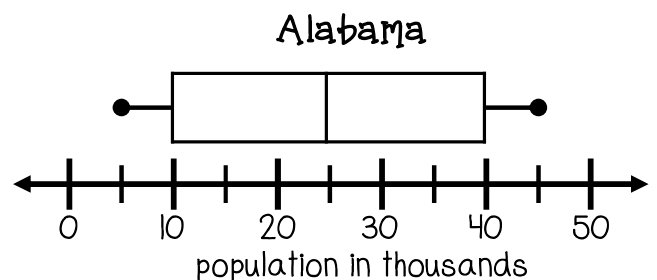
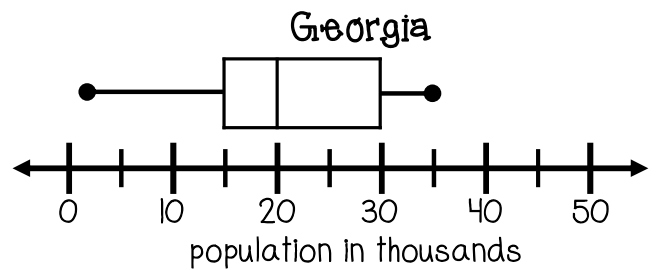
Use the histograms to answer questions #1-6. A group of 10th and 12th graders were surveyed about how many t-shirts they own.

1. Which data set is symmetric?
2. Give a possible reason for the difference in their shapes.
3. How do the centers compare? Which is greater?
4. How do the spreads of each data set compare?
5. What is the shape of the 12th grade data set?
6. Are the sets unimodal, bimodal, or uniform?



Use the box and whisker plots to answer questions #7-12. The population of 15 rural towns in Georgia and 15 rural towns in Alabama are organized and displayed using the box and whisker plots below.

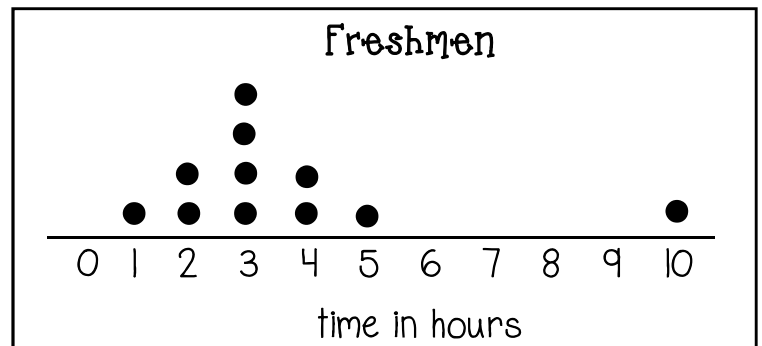
7. Which state's data set has a greater center?
8. How do the shapes of each data set compare?
9. Does either data set have an outlier?
10. Which state's data set has a larger spread?
11. True or False: The 15 rural towns in Georgia are mostly between 15,000 and 30,000.
12. Which state's data set has a smaller range?



SHAPE, CENTER, AND SPREAD *practice 2*

Use the dot plots to answer questions #1-6. A group of freshmen and sophomores were asked how many hours they spend on homework each week.

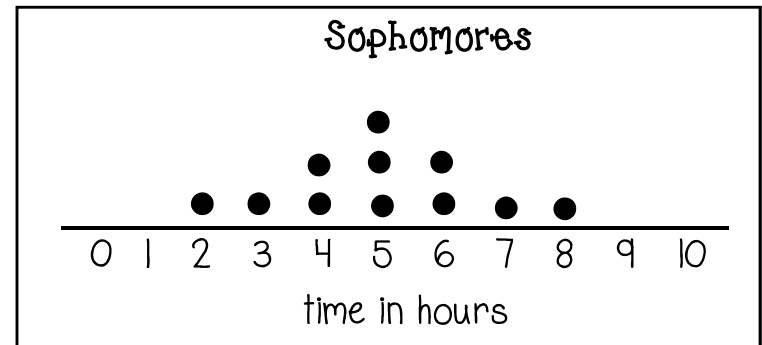
1. How do the shapes of each data set compare?



2. Do either group of students have an outlier?

3. Which data set has a greater center?

4. Which group has a wider spread of data?



5. Give one possible reason for the difference in centers for these data sets.

6. True or False: The data set for the sophomores is uniform.

Use the stem and leaf plots to answer questions #7-12. As people walked into a mall, a surveyor asked their age. She did this on a Tuesday and again on a Saturday from 1 p.m. - 3 p.m.

7. How do the shapes compare?

Tuesday

Stem	Leaf
1	
2	0, 2, 2, 3, 4, 4
3	3, 5
4	2, 6
5	1, 3
6	0, 1, 3, 5, 5

8. How do the peaks compare?

9. How do the centers compare?

Saturday

Stem	Leaf
1	1, 3, 5, 7, 7, 9
2	0, 2, 4, 8, 8, 9, 9
3	1, 3, 4, 5, 7, 7, 8, 9, 9
4	2, 3, 4, 5, 6, 7, 8
5	1, 3, 4, 5, 7, 7
6	0, 1, 5, 6

10. Did the surveyor leave an age range out? Do you think this affected the data sets?

11. True or False: The ages of people who attended the mall on Saturday were evenly distributed.

12. Give one possible reason for the shape of Tuesday's data.