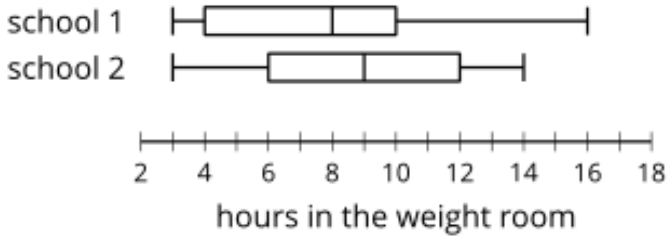
NAME DATE PERIOD

Assessment

One-variable Statistics: End-of-Unit Assessment

1. The two box plots summarize the number of hours spent in the weight room for all the players on the football team for two different high schools. Which of the statements must be true about the distribution of data represented in the boxplots?



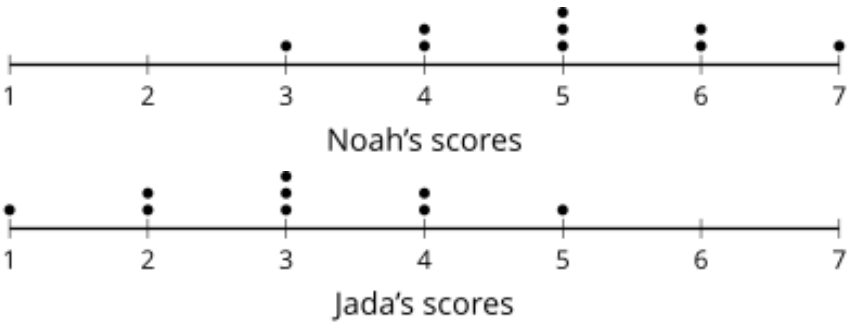
   a. Players at school 1 typically spent more time in the weight room than players at school 2.

   b. The middle half of the data for school 1 has more variability than the middle half of the data for school 2.

   c. The median hours spent in the weight room for school 1 is less than the median for school 2 and the interquartile ranges for both schools are equal.

   d. The total number of hours spent in the weight room for players at school 2 is greater than the total number of hours for players at school 1.

2. The dot plots show 9 scores on a 10 question trivia game for two students. Select **all** the statements that must be true.



NAME DATE PERIOD

A. Noah's scores have greater variability than Jada's scores.

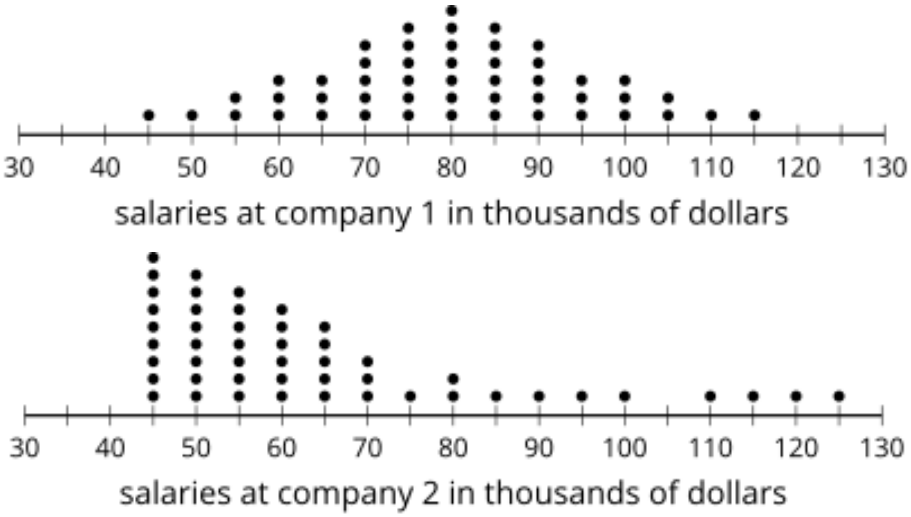
B. The standard deviation of Noah's scores is equal to the standard deviation of Jada's scores.

C. The mean of Noah's scores is greater than the mean of Jada's scores.

D. Noah scored better than Jada on every assignment.

E. Using only Noah's scores, the mean is equal to the median.

3. The dot plots show the salaries for the employees at two small companies before a new company head is hired at each company.



Select **all** the statements that must be true.

A. The mean and median values of salaries shown in the dot plot for company 2 are the same.

B. The standard deviation of salaries shown in the dot plot for company 2 is greater than the standard deviation of salaries at company 1.

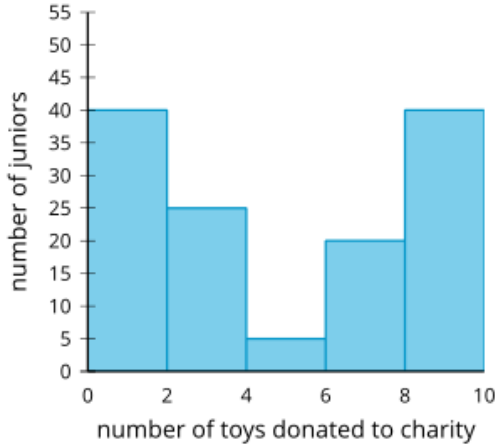
C. The median values of salaries shown in the dot plots for the two companies are about the same.

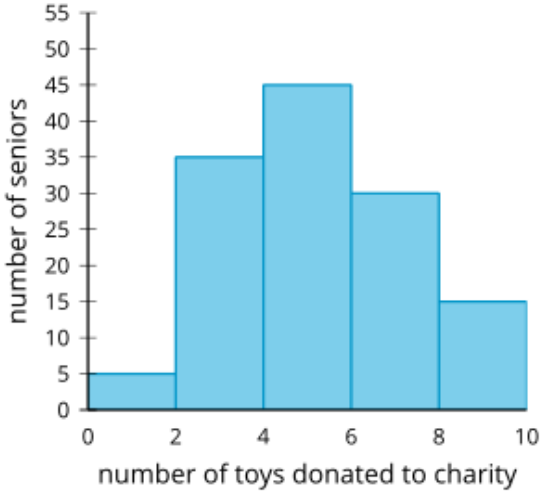
NAME DATE PERIOD

D. The median value of salaries at company 1 will remain unchanged after a company head is hired to have a salary of 500 thousand dollars.

E. The new company head with a salary of 500 thousand dollars will affect the mean value for salaries at company 2 more than the median value for salaries at company 2.

4. A school has a toy drive for a holiday in which students bring in toys to be donated to charity. The number of toys donated by juniors and seniors are summarized in the histograms.





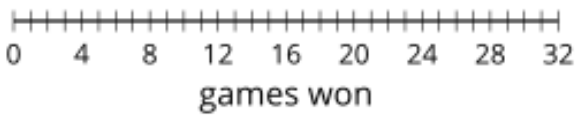
Is the standard deviation of number of toys donated greater for seniors or juniors?

NAME DATE PERIOD

5. The chess club at a school has 15 members. The number of games won in tournament play this season by each member is listed.

6	6	6	7	10	11	12	13
14	14	15	16	18	18	30	

a. Create a box plot of the data.



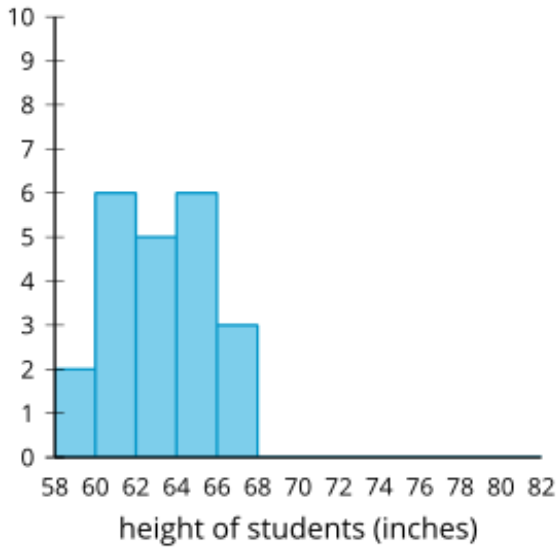
b. What measure of center is most appropriate to use to describe a typical value for the data in this distribution? Explain your reasoning.

c. What measure is most appropriate for describing variability in this data distribution?

6. Diego arranges the students in his math class from shortest to tallest and measures the height in inches of each student in the class. The heights of the 22 shortest students are summarized in the histogram. The tallest 8 students have their heights recorded here.

73	73	73	75	75	77	79	81

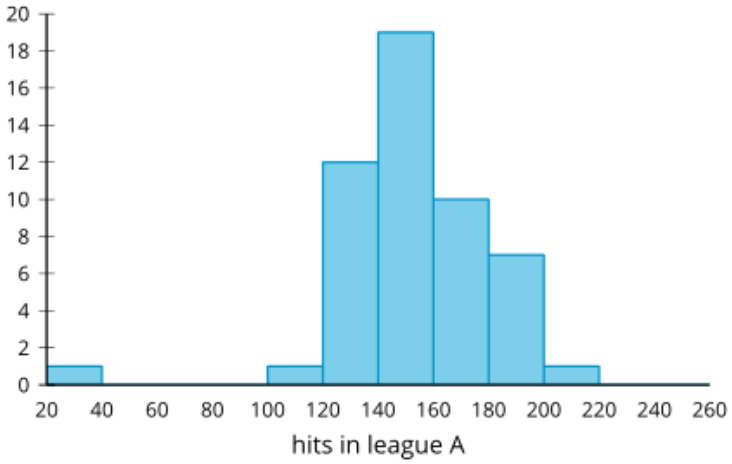
NAME DATE PERIOD



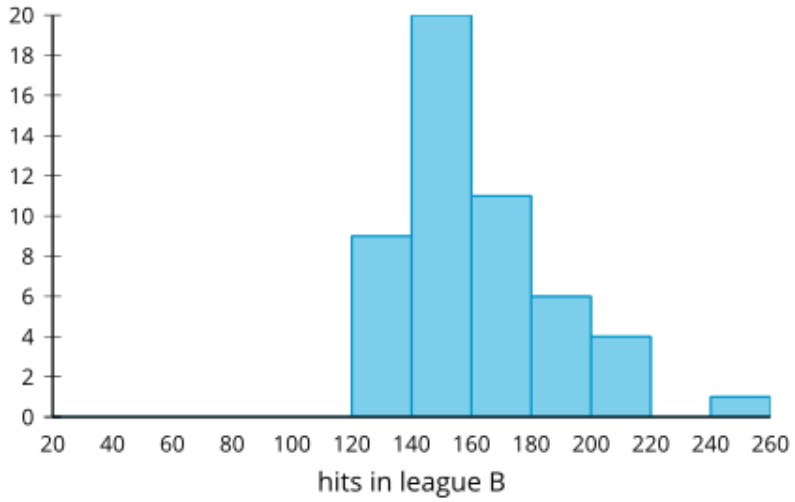
a. Complete the histogram using the data for the tallest 8 students in the class.

b. Use the shape of the distribution to compare the mean and median. Are the mean and median equal? If not, which is greater? Explain your reasoning.

7. The histograms and summary statistics summarize the data for the number of hits in the season by baseball players in two leagues.



NAME DATE PERIOD



Some summary statistics for the number of hits by players in each league.

	mean	median	standard deviation	minimum	Q1	Q3	maximum
league A	151.12	148	26.83	29	136	167	207
league B	163.25	157	24.93	136	145	178	256

a. Use the shape of the distributions to select the appropriate measures of center and variability for the number of hits by players in each of the two leagues. Compare the number of hits by players in the two leagues using these measures. Explain what each value means in your comparison.

NAME DATE PERIOD

b. Each data set contains one outlier. What are the values of the two outliers? Explain how each value is determined to be an outlier.

c. Elena suggests removing the outliers from each data set because they are so unusual. Is this the right action to take? Explain your reasoning.

d. If the outliers are removed, which would be more likely to change significantly: the mean or the median? Is the standard deviation or interquartile range more likely to change significantly? Explain your reasoning.