MAFS.912.S-ID.1.2 Also assesses MAFS.912.S-ID.1.3	Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).
Item Types	Editing Task Choice – May require choosing a correct interpretation. Equation Editor – May require providing a numeric value (mean, median, and/or interquartile range). GRID – May require plotting points on a number line (i.e., indicate quartiles of a box plot or median and mean of a spread). Hot Text – May require interacting with a data spread (i.e., indication of standard deviations, percentages of values in the spread). Matching Item – May require matching data pieces and their effect on the shape, center, spread, interquartile range, or standard deviation. Multiple Choice – May require selecting a statement or graph from a set or selecting a graphical representation of a data set that is approximately normally distributed. Multiselect – May require choosing similarities between data sets. Open Response – May require explaining the differences/similarities between two data sets.
Clarifications	Students will identify similarities and differences in shape, center, and spread when given two or more data sets. Students will predict the effect that an outlier will have on the shape, center, and spread of a data set. Students will interpret similarities and differences in shape, center, and spread when given two or more data sets within the real-world context given. Students will use their understanding of normal distribution and the empirical rule to answer questions about data sets.
Assessment Limits	Items may require the student to calculate mean, median, and interquartile range for the purpose of identifying similarities and differences. Items should not require the student to calculate the standard deviation. Items should not require the student to fit normal curves to data.

	Data distributions should be approximately normal. Data sets should be real-world and quantitative.
Stimulus Attributes	In items that require standard deviation, the value should be given in the stem. Items should use real-world data and be set in a real-world context.
Response Attributes	Items may require the student to apply the basic modeling cycle. Items may require the student to choose an appropriate level of accuracy. Items may require the student to choose and interpret the scale in a graph. Items may require the student to choose and interpret units.
Calculator	Neutral

Sample Item	Item Type
	Matching Item

Florida	
County	**Population**
Smallest	8,349
First Quartile	27,013
Median	107,056
Third Quartile	337,362
Largest	2,617,176

Texas	
County	**Population**
Smallest	95
First Quartile	7,057
Median	18,293
Third Quartile	49,426
Largest	4,336,853

Florida has 67 counties and Texas has 254 counties.

- The mean population for the state of Florida by county is 291,834 with a standard deviation of 467,012.03, and the median is 107,056.

- The mean population for the state of Texas by county is 104,127 with a standard deviation of 374,012.2261, and the median is 18,293.

Some of the data for both states is shown.

A business moves its corporate location from Texas to Florida. As a result of the move, 8,193 people move from the largest Texas county to the smallest Florida county, in terms of population.

Select all the population statistics that will be affected with this population change.

	Increases	Decreases	Stays the Same
Interquartile Range of Florida	☐	☐	☐
Mean of Texas	☐	☐	☐
Median of Florida	☐	☐	☐
Standard Deviation of Texas	☐	☐	☐