

Content and Language Objectives:

Students will ask and answer questions about how to calculate mean, median, mode and identify outliers of a data set. Students will be able to explain the effects of outliers on mean and median after:

- a.) creating a graphic organizer for mean, median and mode
- b.) working in pairs to discuss the differences between mean, median and mode

WARM-UP

Find the minimum maximum and range of the following data sets

1.) 2,5,1,9,12,16,5,8,20,13,6,7,21,20

min 1
max 21
Range $21 - 1 = 20$

2.) 23,24,30,1,29,22,31,31,24,26,30,12,15

min: 1
max: 31
range: 30

Content and Language Objectives:

Students will ask and answer questions about how to calculate mean, median, mode and identify outliers of a data set. Students will be able to explain the effects of outliers on mean and median after:

- a.) creating a graphic organizer for mean, median and mode
- b.) working in pairs to discuss the differences between mean, median and mode

MEAN	The average, add up all the numbers in the data set and divide your answer by how many numbers are in the data set. $\frac{\text{sum of the data}}{\# \text{ of data values}}$
MEDIAN	Put data in order, find the middle number, if there are 2 middle numbers find the mean of the two. 1, 2, 3, 4, 5, 6, 7, 8, 9
MODE	The most frequent number 1, 2, 3, 7, 9, 2, 1, 5, 3, 1 mode: 1
OUTLIER	A number that doesn't fit with the rest of the data. 2, 4, 7, 3, 9, 8, 50, 10, 8 outlier: 50

Content and Language Objectives:

Students will ask and answer questions about how to calculate mean, median, mode and identify outliers of a data set. Students will be able to explain the effects of outliers on mean and median after:

- a.) creating a graphic organizer for mean, median and mode
- b.) working in pairs to discuss the differences between mean, median and mode

~~36~~, ~~93~~, ~~69~~, ~~48~~, ~~25~~, ~~87~~, ~~40~~, ~~51~~, ~~45~~, ~~87~~, ~~24~~ 24, 25, 36, 40, 45, 48, 51, 59, 87, 93, 97
Mean 55 Median 48 Mode No mode

$$\frac{605}{11} = 55$$

49, 49, 27, 67, 62, 21, 78, 92, 41
Mean 54 Median 49 Mode 49

24, 42, 12, 29, 29, 80, 83, 75, 32, 70, 19
Mean 45 Median 32 Mode 29

Content and Language Objectives:

Students will ask and answer questions about how to calculate mean, median, mode and identify outliers of a data set. Students will be able to explain the effects of outliers on mean and median after:

- a.) creating a graphic organizer for mean, median and mode
- b.) working in pairs to discuss the differences between mean, median and mode

An outlier is datum that is far outside the rest of the data.

For example, consider the data:

3, 145, 187, 162, 139, 155, 191, 180.

'3' is the outlier of the data.

The rest of the data lie in the hundred zone.

Content and Language Objectives:

Students will ask and answer questions about how to calculate mean, median, mode and identify outliers of a data set. Students will be able to explain the effects of outliers on mean and median after:

- a.) creating a graphic organizer for mean, median and mode
- b.) working in pairs to discuss the differences between mean, median and mode

Question 1.

Identify any outliers in each set of data.

a) 12, 18, 23, 11, 26, 17, 290, 32

b) 1005, 2099, 1873, 2354, 4012, 124564, 2978, 6001

Content and Language Objectives:

Students will ask and answer questions about how to calculate mean, median, mode and identify outliers of a data set. Students will be able to explain the effects of outliers on mean and median after:

- a.) creating a graphic organizer for mean, median and mode
- b.) working in pairs to discuss the differences between mean, median and mode

Question 2.

a) Determine the mean, median, and mode for the following data.

12, 34, 51, 32, 89, 45, 56, 13 ~~12, 13, 32, 34~~ | 45, 51, 56, 89

mean: 41.5 median: 39.5 mode: None

b) Determine the mean, median, and mode for the following data.

12, 34, 51, 32, 89, 45, 678, 13

mean: 119.25 median: 39.5 mode: none

c) Examine the two sets of data. One of the sets has an outlier. Identify it.

d) Which measure of central tendency has changed a lot because of the outlier? Explain why that happens if an outlier is present.

