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Box and Whisker Plots

Goal: Students will learn to create box and whisker plot drawings from the numerical data of the Presidents ages.

Objective: Through the use of collected data, students will use the different ages of the former and current Presidents of the United States to create and draw their own box and whisker plots. It will be through their mathematical calculations that they will evaluate the data and create their drawing.

**Materials**

* Pictures of Presidents and their ages
* Graphing calculator
* Ruler
* Pencils
* Worksheets given to students

**Vocabulary**

Box and Whisker Plot-Graphically picture groups of numerical data through their five-number summaries: the smallest data value, lower quartile (Q1), median (Q2), upper quartile (Q3), and largest data value.

Quartile-the three points that divide the data set into four equal groups; each representing a fourth of the population being sampled.

IQR-The difference between the upper and lower quartiles. IQR = Q3 − Q1

Outlier- a value considered to be too numerically distant from the rest of the data.

**Procedure**

Who is your president you picked\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ . His age when he became president was\_\_\_\_\_.

List the ages of all the presidents in order from least to greatest

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What is the median of our data? \_\_\_\_\_\_\_

The data consists of how many quartiles? \_\_\_\_\_\_

What is the median of our lower half of data? **Show your work below**

The lower half of the set of data is also known as what?\_\_\_\_\_\_\_\_\_

What is the median of the upper half of the data? **Show your work below**

This section of values is known as which quartile? **\_\_\_\_\_\_\_\_**

Our five number summary values are

Lower value:\_\_\_\_\_

:\_\_\_\_\_

:\_\_\_\_\_

Upper value:\_\_\_\_\_\_\_\_

Using the number line create the appropriate markings for each value of the 5 number summary

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Determine your Interquartile Range from the formula :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Make a prediction:

Will your president that you picked be an outlier? Why or why not? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Do you think any president(s) be outliers? Why or why not? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The formula is for determining the ­­­­­­­­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_ for the \_\_\_\_\_\_\_\_\_\_ half

The formula is for determining the \_\_\_\_\_\_\_\_\_\_\_\_\_ for the \_\_\_\_\_\_\_\_\_\_ half

Calculate the formulas for the outliers. Show your work below

Any values below\_\_\_\_\_\_\_\_\_\_\_\_\_ and any values above \_\_\_\_\_\_\_\_\_\_\_ will be outliers.

Was your president an outlier?\_\_\_\_\_\_\_\_

Are there any outliers?\_\_\_\_\_\_\_\_\_\_\_\_

**Further Activities**

-Have students graph the data on the calculator and create a box and whisker plot so they can see how accurate their drawing is.

- Collect data on the months and days of your friend’s birthday and create a box and whisker plot from the information you collected in decimal form. For example, if your birthday is on May 12th you would write 5.12 for one piece of data.