Dear Parents,

Attached is the study guide (blank as well as answer key) for Wednesday, May 6. Students can print this or just look over the study guide. Do not forget that Monday’s ***homework is due Friday, May 8. Please do not submit the note pages, only submit the homework pages. The study guide attached to this email does not need to be submitted since we worked it together.***

***Here is the video link for the lesson:***

[https://cobbk12org-my.sharepoint.com/:v:/g/personal/john\_white\_cobbk12\_org/EbJiFzj1MBhCjhbOX3f4pAQBf0FviyZtdgBkD\_KHIGaBRA?e=4ZShPV](https://cobbk12org-my.sharepoint.com/%3Av%3A/g/personal/john_white_cobbk12_org/EbJiFzj1MBhCjhbOX3f4pAQBf0FviyZtdgBkD_KHIGaBRA?e=4ZShPV)

Here is an additional video as well that shows how to do it by hand:

<https://video.search.yahoo.com/search/video?fr=yfp-t-m&p=box+and+whisker+plot+video#id=3&vid=a5fac3b65124a965f48d8d7d8c919342&action=click>

Calculator Instructions:

 ***HIT THE DATA BUTTON AND THE FOLLOWING APPEARS:  L1 (1)=***

***This is where you should type in the first number of the data given and then hit enter. Continue to enter each value hitting enter after each number. Once all the data has been entered, then hit: 2ND DATA AND CHOOSE OPTION 2 WHICH IS 1-VAR STATS. MAKE SURE ON THE DATA ROW THAT L1 IS HIGHLIGHTED AND HIT ENTER; ON THE FRQ ROW, MAKE SURE  ONE IS HIGHLIGTED AND PRESS ENTER. ONCE CALC IS HIGLIGHTED, PRESS ENTER. THERE WILL BE 9 ITEMS LISTED:***

***N= SHOULD BE THE NUMBER OF ITEMS IN THE DATA GIVEN***

 **x̄** which is read as“x-bar”: will be the mean or average

minx = will be the minimum value of the data (lowest number of the data set)

Q1= will be the median of the lower half of the data

Med= will be the median of the data (middle number of the data set when all numbers are in order from least to greatest)

Q3 = will be the median of the upper half of the data

Max X= will be the maximum value of the data (highest number of the data set)

***Measures of Central Tendency***:

 Statistics are numerical values used to summarize and compare sets of data. The following measures of central tendency are three commonly used statistics:

1. ***Mean or Average:*** Add up all the values given and divide by how many values there are

2. ***Median*** is the middle number when the numbers are written in numerical order from least to greatest. If there are two numbers in the middle, then add up the two numbers and divide by two.

3. ***Mode***is the number or numbers that occur the most frequently. There may be one mode, no mode, or more than one mode.

Measures of central tendency tell you what the center of the data is. Other commonly used statistics are called ***measures of dispersion.*** They tell you how spread out the data are. One simple measure of dispersion is the range which is the difference between the greatest and least data values. In other words, the ***range*** can be calculated by the following: ***Biggest number - smallest number***.

***Analyzing Dot Plots***

 ***Center:*** is the ***middle***number. It is also known as the ***median*** so the numbers must be in order from *least to greatest.*

 ***Spread*** is ***range.***The formula is as follows: highest number - smallest number.

Calculator Instructions:

***Maximum value*** is the biggest value of the data set

***Minimum value*** is the smallest value of the data set

The median divides the data set into two halves. The ***lower quartile***(designated by ***Q1***) is the ***median of the lower half of data***, and the ***upper quartile***(designated by ***Q3***) is the ***median of the upper half of the data***. The ***interquartile range***is found by calculating the following: ***Q3 - Q1***. The interquartile range shows the ***spread*** of the data

Sometimes a graph of the data can be more informative. One type of statistical graph is a ***box-and-whisker plot***. The "box" encloses the middle half of the data set and the "whiskers" extend to the minimum and maximum data values. The left end of the box is represented by Q1, the middle part of the box is represented by the median, the right side of the box is represented by Q3. The left whisker is represented by the minimum value, and the right whisker is represented by the maximum value.

Use the following steps to draw box-and whisker plots:

* Order the data from the least to greatest.
* Find the minimum and maximum values.
* Find the median.
* Find the lower and upper quartiles.
* Begin the number line with one value below the minimum value and end the number line with one value above the biggest number.
* Plot the ***five-number summary***which is the following: Minimum, Lower Quartile (Q1), Median, Upper Quartile (Q3), Maximum. Use a vertical line for each of these values.
* Draw the box around the middle three vertical lines (Q1, Median, Q3) and then extend the whiskers to the minimum and maximum values.

* ***Lower quartile, median, and upper quartile represent 50% of the data. If analyzing a box and whisker plot:***

* ***The left edge of the box represents Q1 or the lower quartile.***
* ***The right edge of the box represents Q3 or the upper quartile.***
* ***If it asks for the 50% values, then it is the left edge of the box and the right edge of the box.***
* ***If it asks for the IQR, then right edge of box - left edge of box.***

***ALL OF THIS INFORMATION CAN BE DONE ON THE TI-36XPRO BY DOING THE FOLLOWING:***

***HIT THE DATA BUTTON AND THE FOLLOWING APPEARS:  L1 (1)=***

***This is where you should type in the first number of the data given and then hit enter. Continue to enter each value hitting enter after each number. Once all the data has been entered, then hit: 2ND DATA AND CHOOSE OPTION 2 WHICH IS 1-VAR STATS. MAKE SURE ON THE DATA ROW THAT L1 IS HIGHLIGHTED AND HIT ENTER; ON THE FRQ ROW, MAKE SURE  ONE IS HIGHLIGTED AND PRESS ENTER. ONCE CALC IS HIGLIGHTED, PRESS ENTER. THERE WILL BE 9 ITEMS LISTED:***

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Q3 = will be the median of the upper half of the data

Max X= will be the maximum value of the data (highest number of the data set)

If you do not have the TI 36 XPRO calculator, then put the numbers in order from least to greatest to find the values:

***Example***: 55, 72, 64, 58, 50, 62, 70, 84, 92, 76, 68, 60

50, 55, 58, 60, 62, 64, 68, 70, 72, 76, 84, 92

So, the min is the smallest value which is 50

So, the max is the largest value which is 92

So, the median is the number in the middle. Since there are two numbers in the middle, add the 2 numbers in the middle and then divide by 2.

 = 66

Median, or , is 66

Now look at the lower half of the data which is as follows:  50, 55, 58, 60, 62, 64

The value, or the lower quartile, is the middle number of the lower half of the data.

Since there are two numbers in the middle, add the 2 numbers in the middle and then divide by 2.

 = 59

The lower quartile, or , is 59

Now look at the upper half of the data which is as follows:  68, 70, 72, 76, 84, 92

The value, or the upper quartile, is the middle number of the upper half of the data.

Since there are two numbers in the middle, add the 2 numbers in the middle and then divide by 2.

 = 74

The upper quartile, or , is 74

Please do not hesitate to email me with questions or concerns.

Have a blessed evening!

Thanks,

Mrs. Crawford

Sprayberry High School

Special Education Teacher